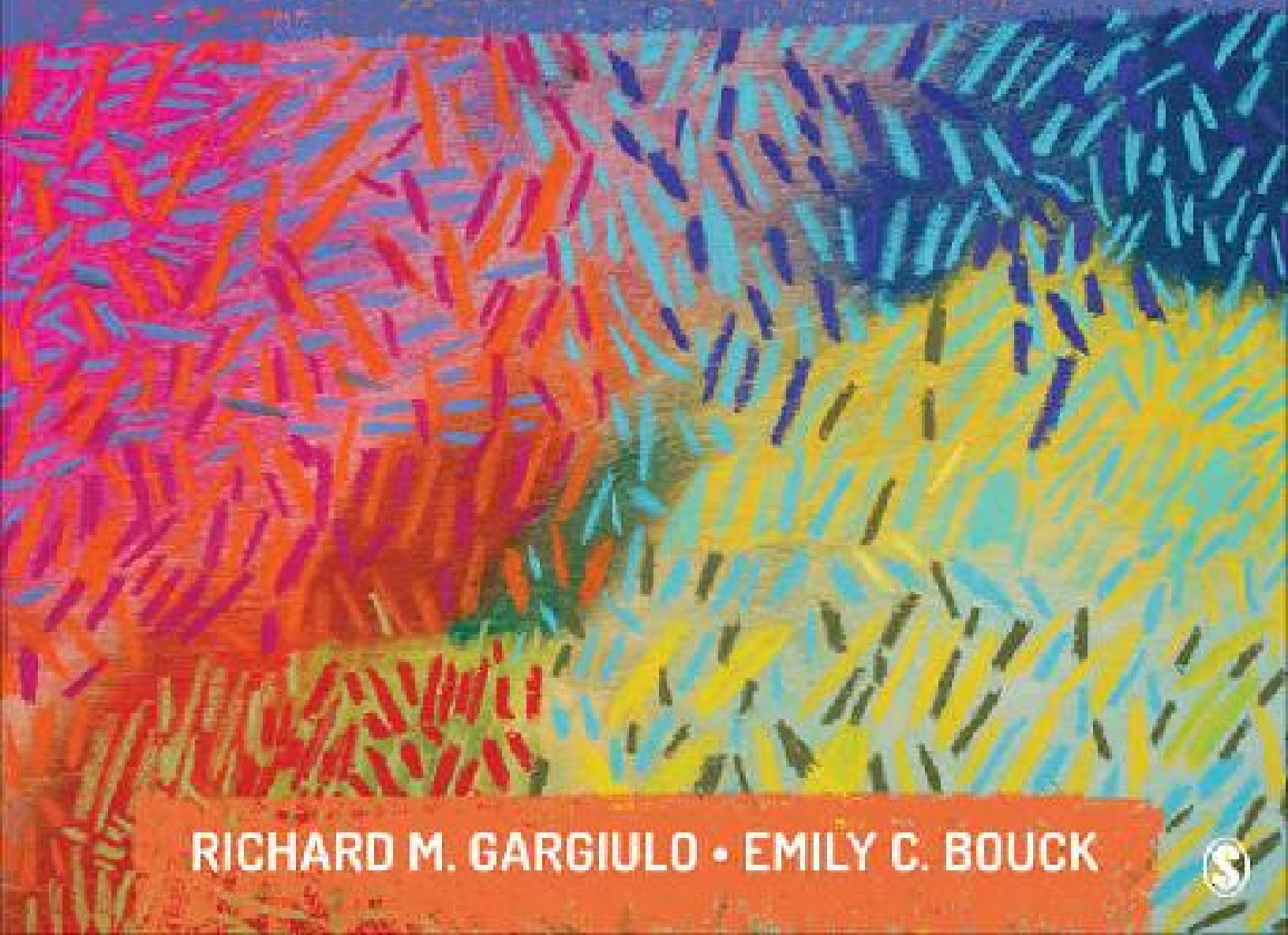
SPECIAL EDUCATION in CONTEMPORARY SOCIETY

• seventh edition •

An Introduction to Exceptionality



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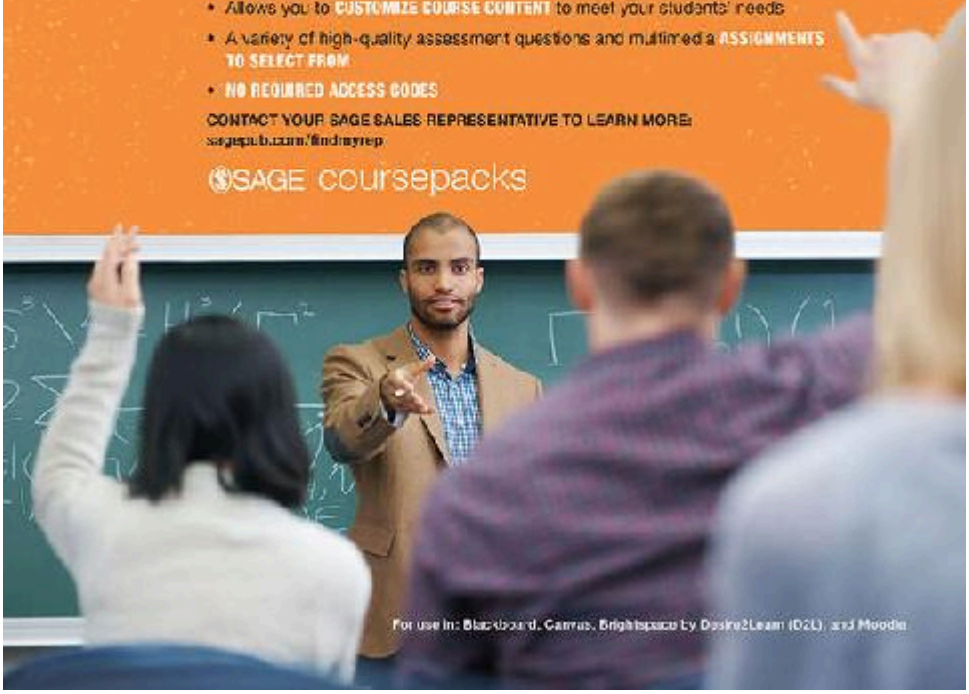

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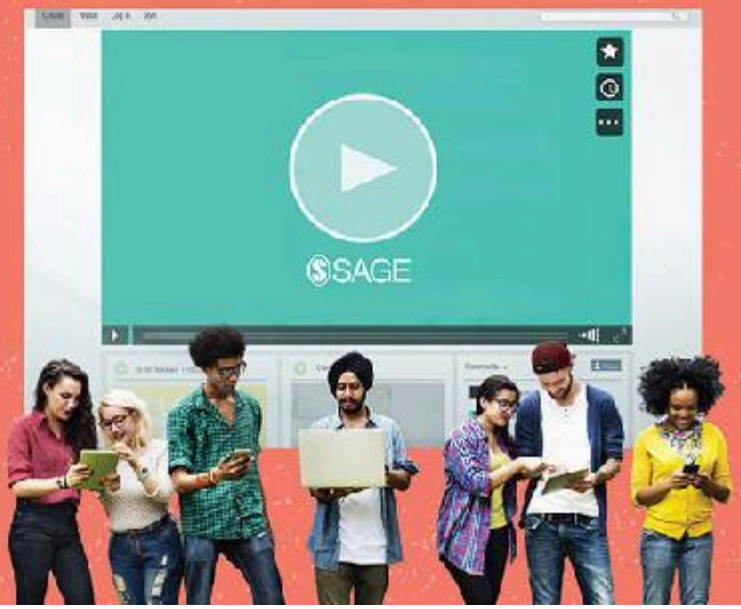

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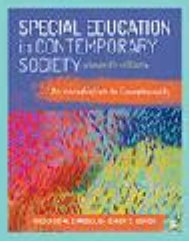

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A Note From the Authors

Dear Professor:

Special Education in Contemporary Society is first and foremost a textbook about people—individuals who, in many ways, are very similar to their peers without a disability. Second, this book serves as a comprehensive introduction to the dynamic field of special education and the children and young adults who benefit from receiving a special education.

Our intention in writing this book is to provide you and your students with a readable, research-based text that also stresses learning in inclusive settings and classroom application. By blending theory with practice, our aim is to provide preservice educators and practicing professionals with the knowledge, skills, attitudes, and beliefs that are so crucial to constructing learning environments that allow all students to reach their full potential.

We also want to portray the "human" side of special education. The field of special education is about children and their families—their frustrations and fears—but perhaps more importantly, it is also about their accomplishments, successes, and triumphs. To us, special education is very real. One author lives with it on a daily basis—it is his passion. The other author is motivated by a passion to make a difference and improve the teaching and learning for all children.

With our best regards,

Richard M. Gargiulo

Emily C. Bouck

Special Education in Contemporary Society

seventh edition

This book is dedicated to my family with gratitude—thank you for your unwavering support, continual encouragement, and never-ending love throughout the years. Each of you has immeasurably enriched my life.

—RMG

October 2019

This book, like all my work, is dedicated to my two children. Anything that takes me away from them must be worth doing—this book was worth doing.

—ECB

October 2019

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Special Education in Contemporary Society

An Introduction to Exceptionality

seventh edition

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Preface

Special Education in Contemporary Society is first and foremost a textbook about people—individuals who, in many ways, are very much just like you. Yet these individuals happen to be recognized as exceptional—either as someone with a disability or as someone with unique gifts and talents. Second, this book serves as a comprehensive introduction to the dynamic field of special education and the children and young adults who benefit from receiving a special education. Our intention in writing *Special Education in Contemporary Society* was to provide you with a readable, research-based book that also stresses classroom application. By blending theory with practice, our aim was to provide teachers-in-training and practicing professionals with the knowledge, skills, attitudes, and beliefs that are crucial to constructing learning environments that enable all students to reach their potential. We also wanted to portray the “human” side of special education. The field of special education is much more than meetings, forms, legal issues, or specific instructional strategies; it is about children and their families—their frustrations and fears—but perhaps more important, it is also about their accomplishments and triumphs. Richard is a father of four daughters who has traveled this rocky road. Each of his girls was recognized as exceptional: Three were gifted, and one had a disability. To him, special education is very real. It is something he has confronted on a daily basis—it is his passion. We hope that by studying this book you, too, will develop an appreciation for and understanding of the children whose lives you will touch.

Audience

Special Education in Contemporary Society was written for two primary audiences. First are those individuals preparing to become teachers, either general educators or special educators. Second, because meeting the needs of students with exceptionalities is often a shared responsibility, this book is also appropriate for professionals who work with individuals who have special needs. Physical therapists, school psychologists, orientation and mobility specialists, and speech–language pathologists are only a few of the individuals who share in the responsibility of providing an appropriate education.

Organization of the Text

The first five chapters constitute Part 1 and focus on broad topics affecting all individuals with an exceptionality; these chapters are foundational for the remainder of the book. Chapter 1 introduces the field of special education, providing an overview of important terms, the prevalence of children and young adults with disabilities, and a framework for understanding exceptionality. An overview of important litigation and legislation, the identification and assessment of individual differences, the development of meaningful individualized instructional programs, and the issue of where students with exceptionalities are to be served are addressed in Chapter 2. In Chapter 3, we examine cultural and linguistic diversity and its relationship to exceptionality. Chapter 4 looks at issues confronting the parents and families of individuals with special needs. The final chapter of Part 1 explores the exciting field of assistive technology and the role it plays in the lives of individuals with exceptionalities.

Part 2 consists of ten chapters that thoroughly examine particular categories of exceptionality using a life span approach. We will talk about intellectual disability, learning disabilities, attention deficit hyperactivity disorder (ADHD), emotional and behavioral disorders, autism spectrum disorders, speech and language impairments, hearing impairments, visual impairments, and physical disabilities, health disabilities, and related low-incidence disabilities; we conclude by looking at individuals who are gifted and talented. Despite the diversity of these topics, each chapter follows a fairly consistent format. You will learn definitions, historical information, prevalence, causes, characteristics, assessment techniques, educational considerations, the role of technology, services for young children as well as adults, family issues, diversity, and current trends and controversies. Each chapter in Part 2 begins with a vignette offering a personal perspective on the exceptionality you will be studying. These stories should remind you that you are learning about real people who confront myriad issues that most individuals will never have to deal with.

Key Features of the Text

In order to make this textbook meaningful, practical, and also enjoyable to read, we have incorporated several distinct features. These learning tools include the following:

- **Chapter-opening vignettes** in the categorical chapters, primarily written by parents of children with disabilities, offer personal stories on the exceptionality studied in a specific chapter. Through these vignettes, students gain a firsthand, vivid account of these parents, their fears and frustrations, their accomplishments and triumphs, and the issues they face on a daily basis.
- The **Strategies for Effective Teaching and Learning** feature provides instructional strategies, tips, techniques, and other ideas.
- The **Insights** feature contains relevant information that adds depth and insight to particular discussion topics.
- The **First Person** feature adds a human touch to the information students are learning. These stories, written by or about individuals with exceptionalities, provide an up-close and personal encounter with children, adults, and families.
- The **Making Inclusion Work** feature highlights special and general educators offering candid perspectives and practical advice about providing services to students with special needs in inclusive settings.
- The chapter-specific **Spotlight on Technology** feature illustrates the value of technology for individuals with exceptionalities.
- Each chapter concludes with **study questions** designed to help you focus on key chapter content and gauge your understanding of the material.
- A series of **learning activities** brings the content to life. Many of these suggested activities ask you to engage in a wide variety of meaningful and worthy tasks.
- Additionally, in Chapters 5–15, you will find a **list of professional organizations and associations** that you may wish to contact for additional information about a topic of particular interest.

New to This Edition

In addition to its key hallmarks, the seventh edition incorporates the following features and content:

Additions Found Throughout the Book

- References have been completely revised and updated to reflect the most current thinking in the field.
- Updated or new tables and figures illustrate current information.
- Several new chapter openers portraying individuals with an exceptionality are included.
- Expanded and numbered Learning Objectives at the beginning of each chapter guide the reader to the most important points to be gleaned from the chapter. Learning Objectives are also highlighted at the end of the chapter in each respective section of the Chapter in Review, reinforcing key concepts.
- End-of-chapter key terms include the page number where the term is initially introduced.
- Each chapter utilizes the Council for Exceptional Children (CEC) initial-level special educator preparation standards.
- A glossary of key terms in Spanish is available on the website and in the interactive eBook.

Chapter-Specific Additions

- Chapter 2 includes a discussion of the impact of charter schools on students with a disability.
- Chapter 4 offers two new First Person features addressing the impact of a disability on family dynamics.
- Chapter 5, "Assistive Technology," provides the most current ideas on using assistive technology with individuals with exceptionalities.
- Chapter 7 begins with a new chapter opener offering a personal accounting of what it is like to have a learning disability.
- Chapter 8 reflects the latest thinking found in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) on ADHD. A new feature of this chapter is the chapter opener where a sibling describes living with a brother with ADHD.
- Chapter 10, "Individuals With Autism Spectrum Disorders," incorporates the paradigm for classifying individuals on the spectrum as outlined in the DSM-5.
- Chapter 13, "Individuals With Visual Impairments," includes information about Unified English Braille, a recent replacement to English Braille, American Edition.
- Chapter 15 contains a new Making Inclusion Work feature written by a school administrator in addition to two new Insights features adding to our understanding of individuals with gifts and talents.
- All chapters in Part 2 incorporate a new Spotlight on Technology feature focusing on technological tools special educators can use in the classroom.
- Appendix B has been redesigned so that chapter content is aligned with the CEC teacher preparation standards.

Digital Resources

SAGE edge offers a robust online environment featuring an impressive array of tools and resources for review, study, and further exploration, keeping both instructors and students on the cutting edge of teaching and learning. SAGE edge content is open access and available on demand. Learning and teaching have never been easier!

edge.sagepub.com/gargiulo7e

SAGE edge for Students provides a personalized approach to helping students accomplish their coursework goals in an easy-to-use learning environment.

- Mobile-friendly **e-flashcards** strengthen understanding of key terms and concepts.
- Mobile-friendly practice **quizzes** allow for independent assessment by students of their mastery of course material.
- **Multimedia content** includes video and multimedia content that appeals to students with different learning styles.
- Links to a sample individualized education program (IEP) and a sample individualized family service plan (IFSP) are provided.
- A glossary of key terms in Spanish is available for download.

SAGE coursepacks for Instructors makes it easy to import our quality content into your school's learning management system (Blackboard, Canvas, Brightspace by D2L, and Moodle). **Don't use an LMS platform?** No problem—you can still access many of the online resources for your text via SAGE edge.

SAGE coursepacks offer:

- **Intuitive, simple format** that makes it easy to integrate the material into your course with minimal effort
- Pedagogically robust **assessment tools including test banks and quizzing/activity options** that foster review, practice, and critical thinking, and offer a more complete way to measure student engagement, including:
- **Chapter-specific discussion questions** to help launch engaging classroom interaction while reinforcing important content
- **Assignable SAGE premium video** (available via the interactive eBook version, linked through SAGE coursepacks) that is tied to learning objectives, and curated and produced exclusively for this text to bring concepts to life and appeal to different learning styles, featuring:
    - **Video cases filmed in special education and inclusive classrooms** that allow students to observe real-life educators and provide teachers-in-training with a sense of what they can expect in their future classrooms
    - Additional **video interviews** feature **teachers, students, parents,** and other **education professionals** sharing their experiences and expertise in the field
    - A comprehensive, downloadable, easy-to-use ***Media Guide in the Coursepack*** **for every video resource**, listing the chapter to which the video content is tied, matching learning objective(s), a helpful description of the video content, and assessment questions
- Editable, chapter-specific **PowerPoint® slides** that offer flexibility when creating multimedia lectures so you don't have to start from scratch but you can customize to your exact needs
- **Sample course syllabi** with suggested models for structuring your course that give you options to customize your course in a way that is perfect for you
- **Lecture notes** that summarize key concepts on a chapter-by-chapter basis to help you with preparation for lectures and class discussions
- **Integrated links to the interactive eBook** that make it easy for your students to maximize their study time with this "anywhere, anytime"

mobile-friendly version of the text (It also offers access to more digital tools and resources, including SAGE Premium Video.)

- **All tables and figures** from the textbook

Acknowledgments

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- Susan A. Brennan, Iowa Educational Services for the Blind and Visually Impaired, “Individuals With Visual Impairments”
- Mari Beth Coleman, University of Tennessee, “Individuals With Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities”
- Julia Link Roberts, Western Kentucky University, “Individuals Who Are Gifted and Talented”

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Beth Underberger
Lisa Walsh
Alexandra Zahka

The exciting footage can be found in the interactive eBook.

About the Contributors

Susan A. Brennan

Susan A. Brennan is a regional director for Iowa Educational Services for the Blind and Visually Impaired and project director for Iowa's Deafblind Services Project. She has been working in the field of visual impairment and blindness for over twenty years.

Dr. Brennan has been a teacher of the visually impaired, statewide consultant, university faculty member, and special school administrator. Dr. Brennan won the Student of the Year Award from the Division on Visual Impairments of the Council for Exceptional Children in 1998 and received the Iowa Council of Administrators of Special Education (I-CASE) student scholarship in 2013. Dr. Brennan has presented at national and international conferences on topics related to visual impairments, blindness, and multiple disabilities. She holds a BS in elementary education from the University of North Dakota, an MA in education from the University of Alabama at Birmingham, and a PhD in human development and family studies from Iowa State University.

Mari Beth Coleman

Mari Beth Coleman is an associate professor in the Special Education Program in the Department of Theory and Practice in Teacher Education at the University of Tennessee. She teaches courses in physical and health impairments and assistive technology and directs master's-level applied research projects for interning teachers. Dr. Coleman received her BA and MEd degrees from the University of Georgia and her PhD from Georgia State University in 2008. Prior to joining the faculty at the University of Tennessee, she taught special education in Georgia for almost thirteen years and was a clinical instructor at Georgia State University for three years.

Dr. Coleman's research interests include the use of assistive technology to promote curriculum access, special education teacher preparation, and educational issues for students with physical and

health impairments. She has coauthored numerous peer-reviewed publications in addition to many state, regional, national, and international presentations related to her research interests. She is especially interested in conducting research that has practical application for classroom teachers. Dr. Coleman is a past president of the Division for Physical, Health and Multiple Disabilities of the Council for Exceptional Children and continues to serve on and chair several committees for that organization in addition to being involved in numerous other service ventures. In her free time, she enjoys spending time with her husband and dogs, reading mystery novels, gardening, and obsessing about heirloom tomatoes.

Julia Link Roberts

Julia Link Roberts is the Mahurin Professor of Gifted Studies at Western Kentucky University. She is also executive director of The Center for Gifted Studies and The Carol Martin Gatton Academy of Mathematics and Science in Kentucky. She was honored in 2001 as the first recipient of the National Association for Gifted Children David W. Belin Advocacy Award. In 2011, she received the Acorn Award as the outstanding professor at a Kentucky university. Dr. Roberts serves on the boards of the Kentucky Association for Gifted Education and The Association for the Gifted, an affiliate of the Council for Exceptional Children, and she is president of the World Council for Gifted and Talented Children. She has published several books, chapters, and journal articles and is a frequent speaker at state, national, and international meetings. *Strategies for Differentiating Instruction: Best Practices for the Classroom,* coauthored with Tracy Inman, received the Legacy Book Award for the 2009 outstanding book for educators in gifted education, awarded by the Texas Association for the Gifted and Talented. *Introduction to Gifted Education*, edited by Dr. Jennifer Robins, Dr. Inman, and Dr. Roberts, received the 2018 Legacy Award in the Scholar category. As the founding director of The Center for Gifted Studies, Dr. Roberts has initiated and implemented many programs and services for children and adolescents who are gifted and talented as well as for educators and parents. She earned a BA at the University of Missouri and an EdD at Oklahoma State University.

About the Authors

Richard M. Gargiulo

I have always wanted to be a teacher. I guess I am a rarity in that I never changed my undergraduate major or left the field of education. Teaching must be in my blood. I grew up in Staten Island, New York, in the shadows of Willowbrook State School, a very large residential facility serving individuals with developmental disabilities. As I recall, my initial exposure to people with disabilities occurred when I was about 10 or 12 years of age and encountered some of the residents from Willowbrook enjoying the park that was adjacent to their campus. This experience made a huge impression on me and, in some unknown way, most likely instilled within me a desire to work with people with disabilities.

I left New York City in 1965 and headed west—all the way to western Nebraska where I began my undergraduate education at Hiram Scott College in Scottsbluff. Three years later, I was teaching fourth graders in the Milwaukee public schools while working toward my master's degree in intellectual disability at the University of Wisconsin–Milwaukee. At the conclusion of my first year of teaching, I was asked to teach a class of young children with intellectual disability. I jumped at the opportunity and for the next three years essentially became an early childhood special educator. It was at this point in my career that I decided to earn my doctorate. I resigned my teaching position and moved to Madison, where I pursued a PhD in the areas of human

learning, child development, and behavioral disabilities. Upon receiving my degree, I accepted a faculty position in the Department of Special Education at Bowling Green State University (Ohio), where for the next eight years I was a teacher educator. In 1982, I moved to Birmingham, Alabama, and joined the faculty of the University of Alabama at Birmingham (UAB), where, until my retirement, I served as a professor in the Department of Curriculum and Instruction. In November 2014, I was awarded professor emeritus status by the board of trustees of the University of Alabama system.

I have enjoyed a rich and rewarding professional career spanning more than four decades. During the course of this journey, I have had the privilege of twice serving as president of the Alabama Federation, Council for Exceptional Children (CEC); serving as president of the Division of International Special Education and Services (DISES), CEC; and serving as president of the Division on Autism and Developmental Disabilities (DADD), CEC. I was also fortunate to serve as the Southeast representative to the board of directors of DADD. I have lectured abroad extensively and was a Fulbright Scholar to the Czech Republic in 1991. In 2007, I was invited to serve as a Distinguished Visiting Professor at Charles University in Prague, Czech Republic.

I mentioned earlier that teaching has always been my passion. In 1999, I received UAB's President's Award for Excellence in Teaching. In 2007, I received the Jasper Harvey Award from the Alabama Federation of the CEC in recognition of being named an outstanding special education teacher educator in the state.

Because of my background in both educational psychology and special education, my research has appeared in a wide variety of professional journals including *Child Development, Journal of Educational Research, Journal of Learning Disabilities, American Journal of Mental Deficiency, Childhood Education, Journal of Visual Impairment and Blindness, British Journal of Developmental Psychology, Journal of Special Education, Early Childhood Education Journal, International Journal of Clinical Neuropsychology*, and *International Journal of Special Education*, among many others.

In addition to the present text, I have authored or coauthored ten

books, several with multiple editions, ranging in topics from counseling parents of children with disabilities to child abuse, early childhood education, early childhood special education, and, most recently, teaching in inclusive classrooms.

Emily C. Bouck

In contrast to Richard, I tried to avoid entering the field of education. Both of my parents were educators—first working as middle and high school teachers (math and science) and then moving into administrative roles, including, between them, principal, curriculum director, and superintendent. I actually attended Northwestern University majoring in psychology and mathematical methods in the social sciences with the goal of becoming a developmental psychologist, but a summer job between my junior and senior years changed my trajectory. That summer, I worked as a one-on-one inclusion counselor for a young girl with autism; my job was to help include her in the activities of the day camp. After that summer, I was hooked.

Not knowing exactly how to proceed to continue working with children with disabilities, I attended the University of Michigan to obtain a master of social work degree, with an emphasis on school social work. Having limited exposure and knowledge of individuals with disabilities up until my summer job, my only understanding of how to work with children with disabilities was through school-based settings. As part of my master's program, I had two internships: one in a residential home for boys and men with intellectual and developmental disabilities in Chelsea, Michigan, and the other with a school social worker back where I grew up in Portland, Michigan. It

was at the St. Louis Center that my passion and commitment for individuals with disabilities, but especially individuals with intellectual disability, autism, and other developmental disabilities, was cemented. It was also while obtaining my master's degree that my plan for obtaining a PhD in special education hatched.

After earning my master's degree, I worked in the rural, upper part of the Lower Peninsula of Michigan for a short time before entering my doctoral program in special education at Michigan State University (MSU) in East Lansing. After leaving MSU in 2006 with a doctorate in special education, I accepted a position at Purdue University in West Lafayette, Indiana. After eight years at Purdue, I took advantage of an opportunity to move "home" and accepted a position in the special education program at MSU. I am currently a professor in the Department of Counseling, Educational Psychology, and Special Education and director of doctoral studies for the special education program. At MSU, I teach the special education law class to undergraduates and the math methods course to our special education interns (i.e., student teachers).

In addition to my role as a faculty member, I have had the privilege of engaging in other ways in the profession. I am a past president of the Division on Autism and Developmental Disabilities (DADD) of the Council for Exceptional Children (CEC); I am still on the board of DADD through two appointed positions: communication chair and critical issues chair. I also previously served as a member-at-large for the Technology and Media Division (TAM) of the CEC. I have also authored two books: *Assistive Technology* (published by SAGE) and *Footsteps Toward the Future: Implementing a Real-World Curriculum for Students With Developmental Disabilities* (published by the CEC). My research has also been published in such journals as *Journal of Autism and Developmental Disorders, Research in Developmental Disabilities, Education and Training in Autism and Developmental Disabilities, Learning Disability Quarterly, Teaching Exceptional Children,* and *Remedial and Special Education*, to name a few. I continue to engage in research; my current projects involve exploring mathematics education for students with disabilities.

Part 1 Foundations of Special Education

kali9/E+/Getty Images

"We know that equality of individual ability has never existed and never will, but we do insist that equality of opportunity still must

be sought."

—Franklin D. Roosevelt Thirty-Second President of the United States

Chapter 1 • Special Education in Context: People, Concepts, and Perspectives
Chapter 2 • Policies, Practices, and Programs
Chapter 3 • Cultural and Linguistic Diversity and Exceptionality
Chapter 4 • Parents, Families, and Exceptionality
Chapter 5 • Assistive Technology

1 Special Education in Context People, Concepts, and Perspectives

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Learning Objectives

After reading Chapter 1, you should be able to:

1.1 **Define** *exceptional children, disability, handicapped, developmentally delayed, at risk,* and *special education*.
1.2 **Identify** the thirteen disability categories recognized by the federal government.
1.3 **Compare** prevalence and incidence.
1.4 **Describe** the historical evolution of services for children and adults with disabilities.
1.5 **Summarize** the related services available to students with disabilities.
1.6 **Contrast** the differences between multi-, inter-, and transdisciplinary team models.
1.7 **Describe** common instructional models of cooperative teaching.
1.8 **Identify** key dimensions of universal design for learning.
1.9 **Summarize** the services typically available to infants/toddlers, preschoolers, adolescents, and adults with disabilities.

We are all different. It is what makes us unique and interesting human beings. Some differences are obvious, such as our height, the color of our hair, or the size of our nose. Other features are not so readily discernible, such as our reading ability or political affiliation. Of course, some characteristics are more important than others. Greater significance is generally attached to intellectual ability than to shoe size. Fortunately, appreciation of individual differences is one of the cornerstones of contemporary American society.

Although most people would like to be thought of as “normal” or “typical” (however defined), for millions of children and young adults, this is not possible. They have been identified and labeled by schools, social service agencies, and other organizations as exceptional, thus requiring special educational services. This textbook is about these individuals who are exceptional.

You are about to embark on the study of a vibrant and rapidly changing field. Special education is an evolving profession with a long and rich heritage. The past few decades in particular have been witness to remarkable events and changes. It is truly an exciting time to study human exceptionality. You will be challenged as you learn about laws and litigation

affecting students with special needs, causes of disability, assessment techniques, and instructional strategies, to mention only a few of the topics we will present. But perhaps more important than any of these issues is our goal to help you develop an understanding and appreciation for a person with special needs. We suspect that you will discover, as we have, that individuals with disabilities are more like their typically developing peers than they are different from them. People with disabilities and those without disabilities share many similarities. In fact, we believe that special education could rightly be considered the study of similarities as well as differences.

Finally, we have adopted a people-first perspective when talking about individuals with disabilities. We have deliberately chosen to focus on the person, not the disability or specific impairment. Thus, instead of describing a child as “an autistic student,” we say “a pupil with autism spectrum disorder.” This style reflects more than just a change in word order; it reflects an attitude and a belief in the dignity and potential of people with disabilities. The children and adults whom you will learn about are first and foremost people.

Definitions and Terminology

Teachers work with many different types of pupils. Let's take a look at some of the children in the fifth-grade class of Daniel Thompson, a first-year teacher. As in many other classrooms across the United States, most of his students are considered to be educationally typical; yet five youngsters exhibit special learning needs. Eleven-year-old Victoria, for instance, is a delightful young girl with a bubbly personality who is popular with most of her classmates. She has been blind since birth, however, as a result of a birth defect. Miguel is shy and timid. He doesn't voluntarily interact with many of his classmates. This is his first year at Jefferson Elementary. Miguel's family only recently moved into the community from their previous home in Mexico. Mr. Thompson tells us that one boy is particularly disliked by the majority of his classmates. Jerome is verbally abusive, is prone to temper tantrums, and on several occasions has been involved in fights on the playground, in the lunchroom, and even in Mr. Thompson's classroom despite the fact that his teacher is a former college football player. Mr. Thompson suspects that Jerome, who lives with his mother in a public housing apartment, is a member of a local gang. Stephanie is teased by most of her peers. Although many of her classmates secretly admire her, Stephanie is occasionally called "a nerd," "a dork," or "Einstein." Despite this friendly teasing, Stephanie is always willing to help other students with their assignments and is sought after as a partner for group learning activities. The final student with special learning needs is Robert. Robert is also teased by his fellow pupils, but for reasons opposite to Stephanie. Robert was in a serious automobile accident when he was in kindergarten. He was identified as having cognitive delays in the second grade. Sometimes his classmates call him "a retard" or "Dumbo" because he asks silly questions, doesn't follow class rules, and on occasion makes animal noises that distract others. Yet Robert is an exceptional athlete. All his classmates want him on their team during gym class.

As future educators, you may have several questions about some of the students in Mr. Thompson's classroom:

- Why are these pupils in a general education classroom?
- Will I have students like this in my class? I’m going to be a high school biology teacher.
- Are these children called disabled, exceptional, or handicapped?
- What does *special education* mean?
- How will I know if some of my students have special learning needs?
- How can I help these pupils?

One of our goals in writing this textbook is to answer these questions as well as address other concerns you may have. Providing satisfactory answers to these queries is not an easy task. Even among special educators, confusion, controversy, and honest disagreement exist about certain issues. As you continue to read and learn, acquire knowledge and skill, and gain experience with individuals with disabilities, we hope you will develop your own personal views and meaningful answers.

Exceptional Children

Both general and special educators will frequently refer to some of their students as **exceptional children**. This inclusive term generally refers to individuals who differ from societal or community standards of normalcy. These differences may be due to significant physical, sensory, cognitive, or behavioral characteristics. Many of these children may require educational programs customized to their unique needs. For instance, a youngster with superior intellectual ability may require services for students identified as gifted; a child with a visual impairment may require textbooks in large print or Braille. However, we need to make an important point. Just because a pupil is identified as exceptional does not automatically mean that he or she will require a special education. In some instances, the student's educational needs can be met in the general education classroom by altering the curriculum and/or instructional strategies.

> **exceptional children** Individuals who deviate from the norm to such an extent that special educational services are required.

We must remember that exceptionality is always relative to the social or cultural context in which it exists. As an illustration, the concept of normalcy, which forms an important part of our definition of exceptionality, depends on the reference group (society, peers, family) as well as the specific circumstances. Characteristics or behaviors that might be viewed as atypical or abnormal by a middle-aged school administrator might be considered fairly typical by a group of high school students. Normalcy is a relative concept that is interpreted or judged by others according to their values, attitudes, and perceptions. These variables, along with other factors such as the culture's interpretation of a person's actions, all help to shape our understanding of what it is to be normal. Is it normal:

- To use profanity in the classroom?
- For adolescent males to wear earrings or shave their head?
- To run a mile in less than four minutes?

- To study while listening to your smartphone?
- To always be late for a date?
- To stare at the floor when reprimanded by a teacher?
- To be disrespectful to authority figures?
- To wear overly large, yet stylish, clothes?

The answer, of course, is that it all depends.

Children with disabilities are first and foremost children.

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Disability Versus *Handicap*

On many occasions, professionals, as well as the general public, will use the terms *disability* and *handicap* interchangeably. This is incorrect. These terms, contrary to popular opinion, are not synonymous but have distinct meanings. When talking about a child with a **disability**, teachers are referring to an inability or a reduced capacity to perform a task in a specific way. A disability is a limitation imposed on an individual by a loss or reduction of functioning, such as the paralysis of leg muscles, the absence of an arm, or the loss of sight. It can also refer to problems in learning. Stated another way, a disability might be thought of as an incapacity to perform as other children do because of some impairment in sensory, physical, cognitive, or other areas of functioning. These limitations become disabilities only when they interfere with a person's attainment of his or her educational, social, or vocational potential.

disability An inability or incapacity to perform a task or activity in a normative fashion.

The term **handicap** refers to the impact or consequence of a disability, not the condition itself. In other words, when we talk about handicaps, we mean the problems or difficulties that a person with a disability encounters as he or she attempts to function and interact with the environment. We would like to extend this definition and suggest that a handicap is more than just an environmental limitation; it also can reflect attitudinal limitations imposed on the person with the disability by people without disabilities.

handicap Difficulties imposed by the environment on a person with a disability.

Individuals with disabilities often encounter various forms of discrimination in their daily lives, which frequently limits their full participation in society. As a result, some would suggest that these citizens are "marginalized and excluded from mainstream society" (Kitchin, 1998, p. 343). Sadly, in some ways, this is an accurate portrayal of contemporary life in the United States despite the ongoing efforts of activists and the disability rights movement,

which seeks to end discrimination on the basis of disabilities. In fact, the term **handicapism** was coined more than four decades ago to describe the unequal and differential treatment experienced by those with a disability (Bogdan & Biklen, 1977).

> **handicapism** The unequal and differential treatment accorded individuals with a disability.

A disability may or may not be a handicap, depending on specific circumstances and how the individual adapts and adjusts. An example should help clarify the differences between these two concepts. Laura, a ninth grader who is mathematically precocious, uses a wheelchair because of a diving accident. Her inability to walk is not a problem in her calculus class. Architectural barriers at her school, however, do pose difficulties for her. She cannot access the water fountain, visit the computer lab on the second floor, or use the bathroom independently. When describing Laura in these situations, we would be correct in saying she has a handicap. It is important that professionals separate the disability from the handicap.

Gargiulo and Kilgo (2020) remind us that an individual with a disability is first and foremost a person, a student more similar to than different from his or her typically developing classmates. The fact that a pupil has been identified as having a disability should never prevent us from realizing just how typical he or she is in many other ways. As teachers, we must focus on the child, not the impairment; separate the ability from the disability; and see the person’s strengths rather than weaknesses. The accompanying First Person feature provides an example of this thinking. Also see Strategies for Effective Teaching and Learning (page 8) when writing about or discussing individuals with disabilities.

Developmentally Delayed and *At Risk*

Before we can answer the question "What is special education?" we have two more terms to consider: *developmentally delayed* and *at risk.* These labels are incorporated in federal legislation (PL 99–457 and PL 108–446, discussed in Chapter 2) and are usually used when referring to infants and preschoolers with problems in development, learning, or other areas of functioning. Although these terms are incorporated into our national laws, Congress failed to define them, leaving this responsibility to the individual states. As you can imagine, a great deal of diversity can be found in the various interpretations, and no one definition is necessarily better than another. The result is the identification of a very heterogeneous group of youngsters.

Each state has developed specific criteria and measurement procedures for ascertaining what constitutes a **developmental delay**. Many states have chosen to define a developmental delay quantitatively, using a youngster's performance on standardized developmental assessments. In one state, a child might be described as being delayed if her performance on a standardized test is at least 25 percent below the mean for children of similar chronological age in one or more developmental areas, such as motor, language, or cognitive ability. In another state, the determination is made when a preschooler's score on an assessment instrument is two or more standard deviations below the mean for youngsters of the same chronological age. Each approach has its advantages and disadvantages. What is really important, however, is that the pupil be identified and receive the appropriate services (Gargiulo & Kilgo, 2020).

developmental delay A term defined by individual states referring to children ages 3 to 9 who perform significantly below developmental norms.

First Person: Elizabeth Perceptions and Impressions

As a woman in my early 40s with cerebral palsy, I can readily reflect on how I am perceived by those who are not disabled. I was born with cerebral palsy, which affects my motor skills. I contend that it is much easier to be born with a disability than to acquire one later in life—I don't know what it is like to be "normal."

I am very blessed in being more independent than I ever dreamed would be possible! I drive a regular car, work part-time for a law firm, and live alone with help from a wonderful outside support team. I'm active in my church and in community affairs, serving on the board of the Independent Living Center, as well as in other activities. I'm a member of a local United Cerebral Palsy sports team. As you can see, not much grass grows under my feet!

Throughout my life, I have encountered many and varied reactions to my disability. Some people see me as a person who happens to be disabled. It is wonderful to be around them. They accept me as "Elizabeth." Yes, my speech is, at times, difficult to understand. Yes, I'm in constant motion. But these people see me first and can look beyond my disability, many times forgetting it. I am able to be myself!

When I do need assistance, all I have to do is ask. I have a strong family pushing me to be as independent as possible. I'm grateful to my stepfather, who said, "You can do it!" My mother, afraid I might fall, was hesitant but supportive. My siblings have been great encouragers. I have many friends who are able to see beyond my disability.

I have also met people who have not been around individuals with physical disabilities. I can easily spot those who are uncomfortable around me. Sometimes, after being around me for a while, they may get used to me and then feel quite comfortable. In fact, when people ask me to say something again, rather than nodding their heads pretending to understand me, it shows that they care enough about what I said to get it right.

From those who feel uncomfortable around me, I usually get one of two reactions: "Oh, you poor thing!" or "You're such an inspiration—you're a saint to have overcome cerebral palsy!" I realize people mean well, but I see right through their insecurities. Think about some of their comments. I'm not a "thing," I'm an individual. I have the same thoughts, dreams, and feelings as anyone else.

Many times I am perceived as being intellectually disabled, even though I have a college degree. When I'm in a restaurant, my friend may be asked, "What does she want?" One day I was getting into the driver's seat of my car, and a lady inquired, "Are you going to drive that car?" I kept quiet, but I thought, "No, it will drive itself!" Recently, while flying home from Salt Lake City, the flight attendant asked my friend if I understood how the oxygen worked. I chuckled to myself. I have been flying for over thirty years! Furthermore, my former roommate had lived with an oxygen tank for three years, and we were constantly checking the flow level. (In defense of airlines, I must say that I have been treated with great respect.)

For those who say I am an inspiration, I can respond in one of two ways. I can take the comment as a sincere compliment and genuinely say, "Thank you." On the other hand, I can see it as an off-the-cuff remark. Those who say that I inspire them may be thinking, "I'm glad I'm not like her" or "Boy, she goes through so much to be here." As I stated

earlier, I do things differently, and it takes me longer. But I have learned to be patient and the importance of a sense of humor. I am very grateful to have accomplished as much as I have.

Source: E. Ray, personal communication.

The use of the broad term *developmentally delayed* is also in keeping with contemporary thinking regarding the identification of young children with disabilities. Because of the detrimental effects of early labeling, the Individuals with Disabilities Education Act (PL 101–476), commonly referred to as IDEA, permits states to use the term *developmentally delayed* when discussing young children with disabilities. In fact, PL 105–17, the 1997 reauthorization of this law, allows the use of this term, at the discretion of the state and local education agency, for children ages 3 through 9. We believe, as other professionals do, that the use of a specific disability label for young children is of questionable value. Many early childhood special education programs offer services without categorizing children on the basis of a disability. We believe this approach is correct.

Contemporary thinking suggests that students with disabilities should be educated in the most normalized environment.

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When talking about children who are **at risk**, professionals generally mean individuals who, although not yet identified as having a disability, have a high probability of manifesting a disability because of harmful biological, environmental, or genetic conditions. Environmental and biological factors

often work together to increase the likelihood of a child's exhibiting disabilities or developmental delays. Exposure to adverse circumstances *may* lead to future difficulties and delays in learning and development, but it is not guaranteed that such problems will present themselves. Many children are exposed to a wide range of risks, yet fail to evidence developmental problems. Possible risk conditions include low birth weight, exposure to toxins, child abuse or neglect, oxygen deprivation, and extreme poverty, as well as genetic disorders such as Down syndrome or PKU (phenylketonuria).

at risk An infant or child who has a high probability of exhibiting delays in development or developing a disability.

Special Education

When a student is identified as being exceptional, a special education is sometimes necessary. Recall that just because the student has a disability does *not* mean that a special education is automatically required. A special education is appropriate only when a pupil's needs are such that he or she cannot be accommodated in a general education program. Simply stated, a **special education** is a customized instructional program designed to meet the unique needs of an individual learner. It may necessitate the use of specialized materials, equipment, services, and/or teaching strategies. For example, an adolescent with a visual impairment may require books with larger print; a pupil with a physical disability may need specially designed chairs and work tables; a student with a learning disability may need extra time to complete an exam. In yet another instance, a young adult with cognitive impairments may benefit from a cooperative teaching arrangement involving one or more general educators along with a special education teacher. Special education is but one component of a complex service delivery system crafted to assist the individual in reaching his or her full potential.

> **special education** Specially designed instruction to meet the unique needs of an individual recognized as exceptional.

A special education is not limited to a specific location. Contemporary thinking requires that services be provided in the most natural or normalized environment appropriate for the particular student. Such settings might include the local Head Start program for preschoolers with disabilities, a self-contained classroom in the neighborhood school for children with hearing impairments, or a special high school for students who are academically gifted or talented. Many times a special education can be delivered in a general education classroom.

Finally, if a special education is to be truly beneficial and meet the unique needs of students, teachers must collaborate with professionals from other

disciplines who provide **related services**. Speech–language pathologists, social workers, and occupational therapists are only a few of the many professionals who complement the work of general and special educators. Related services are an integral part of a student's special education; they allow the learner to obtain benefit from his or her special education.

related services Services defined by federal law whose purpose is to assist a student with exceptionalities in deriving benefit from a special education.

Before leaving this discussion of definitions and terminology, we believe it is important to reiterate a point we made earlier. Individuals with disabilities are more like their typical peers than they are different from them. Always remember to see the person, not the disability, and to focus on what people can do rather than what they can't do. It is our hope that as you learn about people with disabilities, you will develop a greater understanding of them, and from this understanding will come greater acceptance.

Strategies for Effective Teaching and Learning
Suggestions for Communicating About Individuals With Disabilities

As a teacher, you are in a unique position to help shape and mold the attitudes and opinions of your students, their parents, and your colleagues about individuals with disabilities. Please consider the following points when writing about or discussing people with disabilities:

- **Do not focus on a disability** unless it is crucial to a story. Avoid tear-jerking human-interest stories about incurable diseases, congenital impairments, or severe injury. Focus instead on issues that affect the quality of life for those same individuals, such as accessible transportation, housing, affordable health care, employment opportunities, and discrimination.
- **Do not portray successful people with disabilities as superhuman**. Even though the public may admire superachievers, portraying people with disabilities as superstars raises false expectations that all people with disabilities should achieve at this level.
- **Do not sensationalize a disability** by saying "afflicted with," "crippled with," "suffers from," or "victim of." Instead, say "person who has multiple sclerosis" or "man who had polio."

- **Put people first**, not their disability. Say “a youngster with autism spectrum disorder,” “the teenager who is deaf,” or “people with disabilities.” This puts the focus on the individual, not his or her particular functional limitation.
- **Emphasize abilities**, not limitations. For example, say “uses a wheelchair/braces” or “walks with crutches,” rather than “is confined to a wheelchair,” “is wheelchair bound,” or “is crippled.” Similarly, do not use emotional descriptors such as *unfortunate* or *pitiful*.
- **Avoid euphemisms** in describing disabilities. Some blind advocates dislike *partially sighted* because it implies avoiding acceptance of blindness. Terms such as *handicapable*, *mentally different*, *physically inconvenienced*, and *physically challenged* are considered condescending. They reinforce the idea that disabilities cannot be dealt with up front.
- **Do not equate disability with illness**. People with disabilities can be healthy, though they may have chronic diseases such as arthritis, heart disease, and diabetes. People who had polio and experienced aftereffects have postpolio syndrome; they are not currently experiencing the active phase of the virus. Also, do not imply disease if a person’s disability resulted from anatomical or physiological damage (for example, a person with spina bifida). Finally, do not refer to people with disabilities as patients unless their relationship with their doctor is under discussion or they are referenced in the context of a clinical setting.
- **Show people with disabilities as active participants** in society. Portraying persons with and without disabilities interacting in social and work environments helps break down barriers and open lines of communication.

Source: Adapted from *Guidelines: How to Write and Report About People With Disabilities*, Research and Training Center on Independent Living, University of Kansas, Lawrence.

Categories and Labels

Earlier we defined a person with exceptionalities as someone who differs from a community's standard of normalcy. Students identified as exceptional may require a special education and/or related services. Many of these pupils are grouped or categorized according to specific disability categories. A **category** is nothing more than a label assigned to individuals who share common characteristics and features. Most states, in addition to the federal government, identify individuals receiving special education services according to discrete categories of exceptionality. Public Law (PL) 108–446 (the Individuals with Disabilities Education Improvement Act of 2004) identifies the following thirteen categories of disability:

category Label assigned to individuals who share common characteristics and features.

- Autism
- Deaf-blindness
- Developmental delay
- Emotional disturbance
- Hearing impairments including deafness
- Intellectual disability
- Multiple disabilities
- Orthopedic impairments
- Other health impairments
- Specific learning disabilities
- Speech or language impairments
- Traumatic brain injury
- Visual impairments including blindness

A category is nothing more than a label assigned to individuals who share common characteristics and features.

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The federal government's interpretation of these various disabilities is presented in Appendix A. Individual states frequently use these federal definitions to construct their own standards and policies as to who is eligible to receive a special education.

Notably absent from the preceding list are individuals described as gifted or talented. These students are correctly viewed as exceptional, although they are not considered individuals with disabilities; nevertheless, most states recognize the unique abilities of these pupils and provide a special education.

In the following chapters, we will explore and examine the many dimensions and educational significance of each of these categories. It is important to remember, however, that although students may be categorized as belonging to a particular group of individuals, each one is a unique person with varying needs and abilities.

The entire issue of categorizing, or labeling, individuals with disabilities has been the subject of controversy. Labeling, of course, is an almost inescapable fact of life. How would you label yourself? Do you consider yourself a Democrat or a Republican? Are you overweight or thin, Christian or non-Christian, liberal or conservative? Depending on the context, some labels may be considered either positive or negative. Labels may be permanent, such as *cerebral palsy*, or temporary, such as *college*

sophomore. Regardless, labels are powerful, biasing, and frequently filled with expectations about how people should behave and act.

Labels, whether formally imposed by psychologists or educators or casually applied by peers, are capable of stigmatizing and, in certain instances, penalizing children. Remember your earlier school days? Did you call any of your classmates “a retard,” “Four-Eyes,” “Fatso,” “a geek,” or “a nerd”? Were these labels truly valid? Did they give a complete and accurate picture of the person, or did the teasing and taunting focus only on a single characteristic? The labels we attach to people and the names we call them can significantly influence how individuals view themselves and how others in the environment relate to them.

Special educators have been examining the impact of labels on children for many years; unfortunately, the research evidence is not clear-cut, and it is difficult to draw consistent conclusions (Bicard & Heward, 2016; Ysseldyke, Algozzine, & Thurlow, 1992). The information gleaned from a variety of studies is frequently inconclusive, contradictory, and often subject to methodological flaws. Kliewer and Biklen (1996) perhaps best capture this state of affairs when they note that labeling or categorizing certain youngsters is a demeaning process frequently contributing to stigmatization and leading to social and educational isolation; on the other hand, a label may result in pupils receiving extraordinary services and support (Woolfolk, 2019).

Despite the advantages of labeling children (see Table 1.1), we, like many of our colleagues in the field of special education, are not ardent supporters of the labeling process. We find that labeling too often promotes stereotyping and discrimination and may be a contributing factor to exclusionary practices in the educational and social arenas. Nicholas Hobbs (1975) commented, many years ago, that labeling erects artificial boundaries between children while masking their individual differences. Reynolds and his colleagues (Reynolds, Wang, & Walberg, 1987), who strongly oppose labeling pupils with special needs, astutely observe that “the boundaries of the categories [*intellectual disability* is a good illustration] have shifted so markedly in response to legal, economic, and

political forces as to make diagnosis largely meaningless" (p. 396). Some professionals (Cook, 2001; Harry & Klingner, 2007) are of the opinion that labeling actually perpetuates a flawed system of identifying and classifying students in need of special educational services.

One of our biggest concerns is that the labels applied to children often lack educational relevance. Affixing a label to a child, even if accurate, is not a guarantee of better services. Rarely does a label provide instructional guidance or suggest effective management tactics. We are of the opinion that the delivery of instruction and services should be matched to the needs of the child rather than provided on the basis of the student's label. This thinking has led to calls for **noncategorical** programs constructed around student needs and common instructional requirements instead of categories of exceptionality. These programs focus on the similar instructional needs of the pupils rather than the etiology of the disability. Although noncategorical programs are gaining in popularity, it is still frequently necessary to classify students on the basis of the severity of their impairment—for example, mild/moderate or severe/profound.

noncategorical Programs developed based on student needs and common instructional requirements rather than on disability.

Table 1.1 The Advantages and Disadvantages of Labeling Individuals With Special Needs

Table 1.1 The Advantages and Disadvantages of Labeling Individuals With Special Needs

Advantages	Disadvantages
• Labels serve as a means for funding and administering education programs. • Teacher certification programs and the credentialing process are	• Labels can be stigmatizing and may lead to stereotyping. • Labeling has the potential of focusing attention on limitations and what a person

Advantages	Disadvantages
frequently developed around specific disability categories (e.g., intellectual disabilities, hearing impairment). • Labels allow professionals to communicate efficiently in a meaningful fashion. • Research efforts frequently focus on specific diagnostic categories. • Labels establish an individual's eligibility for services. • Treatments, instruction, and support services are differentially provided on the basis of a label (e.g., sign language for a student who is deaf, an accelerated or enriched curriculum for pupils who are gifted and talented). • Labels heighten the visibility of the unique needs of persons with disabilities. • Labels serve as a basis for counting the number of individuals with disabilities and thus assist governments, schools, agencies, and other organizations in	cannot do instead of on the individual's capabilities and strengths. • Labels can sometimes be used as an excuse or a reason for delivering ineffective instruction (e.g., "Marvin can't learn his multiplication facts because he is intellectually disabled"). • Labels can contribute to a diminished self-concept, lower expectations, and poor self-esteem. • Labels are typically inadequate for instructional purposes; they do not accurately reflect the educational or therapeutic needs of the individual student. • Labeling can lead to reduced opportunities for normalized experiences in school and community life. • A label can give the false impression of the permanence of a disability; some labels evaporate upon leaving the school environment.

Advantages	Disadvantages
planning for the delivery of needed services. • Advocacy and special interest groups, such as the Autism Society of America or the National Federation of the Blind, typically have an interest in assisting particular groups of citizens with disabling conditions.	

Prevalence of Children and Young Adults With Disabilities

How many children and adolescents are identified as exceptional and have special needs? Before answering this question, we must clarify two key terms frequently encountered when describing the number of individuals with disabilities.

Statisticians and researchers often talk about *incidence* and *prevalence.* Technically speaking, **incidence** refers to a rate of inception, or the number of *new* instances of a disability occurring within a given time frame, usually a year. As an illustration, it would be possible to calculate the number of infants born with Down syndrome between January 1 and December 31, 2019, in a particular state. This figure would typically be expressed as a percentage of the total number of babies born within the prescribed period of time; for example, 20 infants with Down syndrome out of 15,000 births would yield an incidence rate of .133 percent. **Prevalence** refers to the *total* number of individuals with a particular disability existing in the population at a given time. Prevalence is expressed as a percentage of the population exhibiting this specific exceptionality—for instance, the percentage of pupils with learning disabilities enrolled in special education programs during the current school year. If the prevalence of learning disabilities is estimated to be 5 percent of the school-age population, then we can reasonably expect about 50 out of every 1,000 students to evidence a learning disability. Throughout this text, we will report prevalence figures for each area of exceptionality that we study. Of course, establishing accurate estimates of prevalence is based on our ability to gather specific information about the number of individuals with disabilities across the United States. Obviously, this is not an easy job. Fortunately, the federal government has assumed this responsibility. Each year the Department of Education issues a report (*Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act*) on the number of children receiving a special education. These data are based on information supplied by the individual states.

incidence A rate of inception; number of new cases appearing in the population within a specific time period.

prevalence The total number of individuals in a given category during a particular period of time.

Number of Children and Young Adults Served

Approximately 6.05 million U.S. students (6,048,882) between the ages of 6 and 21 were receiving a special education during the 2016–2017 school year (U.S. Department of Education, 2018). The number of students in each of the thirteen disability categories recognized by the federal government is recorded in Table 1.2. Learning disabilities account for about four out of every ten pupils with disabilities (38.6%); students with dual sensory impairments (deaf-blindness) represent the smallest category of exceptionality (less than 0.05%). Figure 1.1 visually presents the percentages of students with various disabilities receiving a special education.

Table 1.2 Number of Students Ages 6–21 Receiving a Special Education During School Year 2016–2017

Table 1.2 Number of Students Ages 6–21 Receiving a Special Education During School Year 2016–2017

Disability	Number	Percent of Total
Specific learning disabilities	2,334,868	38.6%
Speech or language impairments	1,016,212	16.8%
Other health impairments	931,527	15.4%
Autism	580,692	9.6%
Intellectual disability	417,372	6.9%
Emotional disturbance	332,688	5.5%
Developmental delay	151,222	2.5%

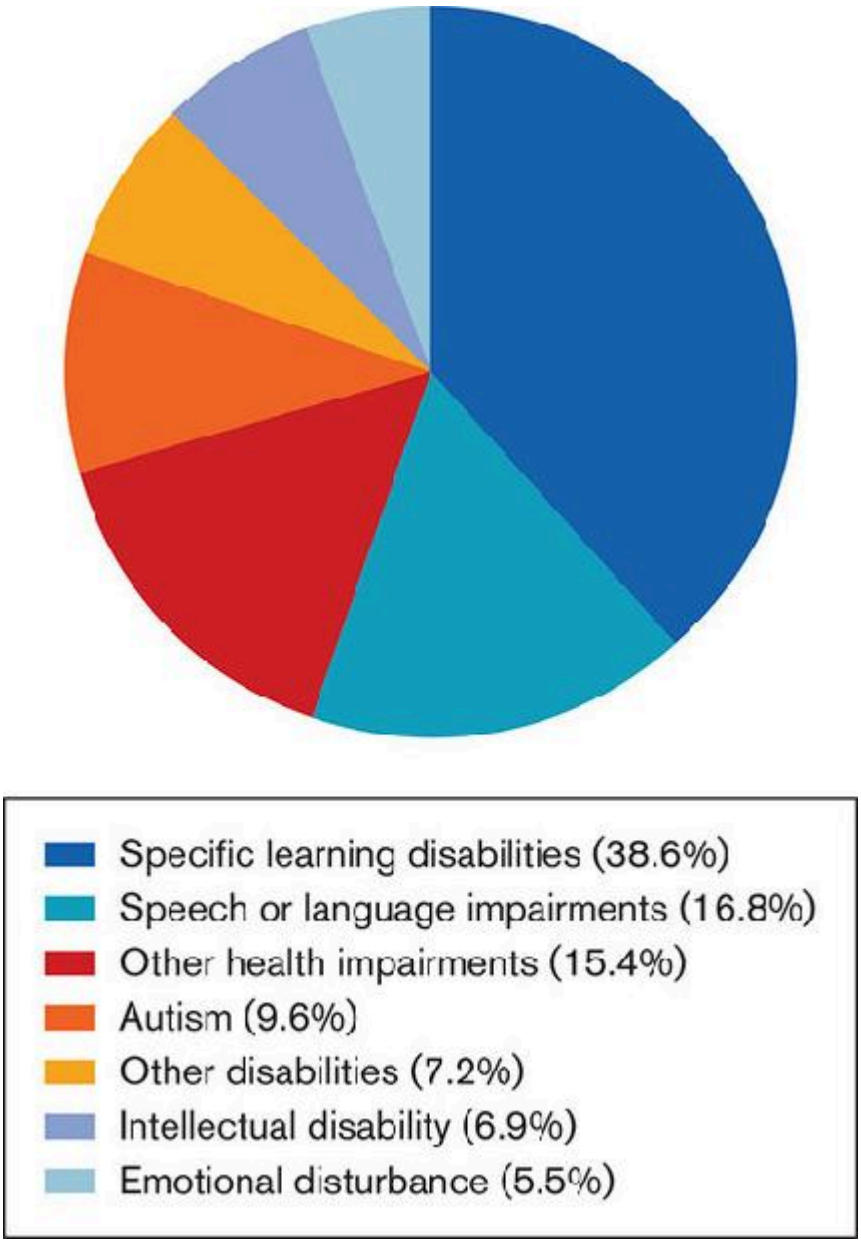
Disability	Number	Percent of Total
Multiple disabilities	127,026	2.1%
Hearing impairments	66,537	1.1%
Orthopedic impairments	36,293	0.6%
Traumatic brain injury	24,195	0.4%
Visual impairments	24,195	0.4%
Deaf-blindness	3,024	0.05%
Total*	6,045,851	99.95%

Note: Table based on data from forty-nine states, Puerto Rico, the District of Columbia, Bureau of Indian Education schools, and outlying areas. Data for Wisconsin not included.

* Due to rounding, percentages do not add to 100; subsequently, the total number of students varies from the federal total child count.

Source: U.S. Department of Education. (2018). *Fortieth annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2018*. Washington, DC: U.S. Government Printing Office.

Figure 1.1 Distribution of Students Ages 6–21 Receiving a Special Education During School Year 2016–2017



Note: Percentages based on data from forty-nine states, Puerto Rico, the District of Columbia, Bureau of Indian Education schools, and outlying areas. Data for Wisconsin not included. Other disabilities include multiple disabilities, hearing impairments, orthopedic impairments, visual impairments, deaf-blindness, traumatic brain injury, and developmental delay.

Source: U.S. Department of Education. (2018). *Fortieth annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2018*. Washington, DC: U.S. Government Printing Office.

With the passage of PL 99–457 (the Education of the Handicapped Act Amendments of 1986, currently referred to as IDEA), services for infants, toddlers, and preschoolers with special needs have significantly increased. This first major amendment to PL 94–142 (the Education for All Handicapped Children Act) was enacted because more than half the states did not require special education services for preschoolers with disabilities (Koppelman, 1986). PL 99–457 remedied this situation by mandating that youngsters between 3 and 5 years of age receive the same educational services and legal protections as their school-age counterparts, or else states would risk the loss of significant federal financial support. Full compliance with this mandate was finally achieved during the 1992–1993 school year. During the 2016–2017 school year, approximately 760,000 preschoolers with special needs were receiving services under Part B of IDEA (U.S. Department of Education, 2018). By way of comparison, approximately 455,500 youngsters were served during the 1992–1993 school year (U.S. Department of Education, 1995). This growth translates into a 67 percent increase in the number of preschoolers receiving a special education.

Infants and toddlers with disabilities—that is, youngsters from birth through age 2—also benefited from PL 99–457. Part C of IDEA, which addresses this population, does *not* require that early intervention services be provided. Instead, states were encouraged, via financial incentives, to develop comprehensive and coordinated programs for these youngsters and their families. All states have met this challenge, and almost 373,000 infants and toddlers were the recipients of services as of the fall of 2016 (U.S. Department of Education, 2018).

You may have noticed that, throughout this discussion, we have failed to present any data concerning individuals who are gifted and talented. This was not an oversight. Federal legislation does *not* require that the states provide a special education for these students. Unfortunately, not all states

mandate a special education for children identified as gifted and talented. Recent data suggest that approximately 3.32 million children and young adults are identified as gifted and talented and receiving a special education (Office for Civil Rights, 2019). If these students were included in the overall federal calculation of pupils with exceptionalities, this group of learners would rank as the largest.

A Brief History of the Development of Special Education

The history of special education can perhaps best be characterized as one of evolving or changing perceptions and attitudes about individuals with disabilities. Generally speaking, at any given time, the programs, resources, and practices that affect citizens with disabilities are a reflection of the current social climate. As people’s ideas and beliefs about exceptionality change, so do services and opportunities. A transformation in attitude is frequently a prerequisite to a change in the delivery of services.

Pioneers of Special Education

The foundation of contemporary U.S. societal attitudes toward individuals with disabilities can be traced to the efforts of various European philosophers, advocates, and humanitarians. These dedicated reformers and pioneering thinkers were catalysts for change. Educational historians typically trace the beginnings of special education to the late eighteenth and early nineteenth centuries.

One of the earliest documented attempts at providing a special education were the efforts of the French physician Jean-Marc Gaspard Itard (1774–1838) at educating 12-year-old Victor, the so-called wild boy of Aveyron. According to folklore, Victor was discovered by a group of hunters in a forest near the town of Aveyron. When found, he was unclothed, was without language, ran but did not walk, and exhibited animal-like behavior (Lane, 1979). Itard, an authority on diseases of the ear and teaching youngsters with hearing impairments, endeavored in 1799 to "civilize" Victor. He attempted to teach Victor through a sensory training program and what today would be called behavior modification. Because this adolescent failed to fully develop language after five years of dedicated and painstaking instruction, and only mastered basic social and self-help skills, Itard considered his efforts a failure. Yet he successfully demonstrated that learning was possible even for an individual described by his contemporaries as a hopeless and incurable idiot. The title *Father of Special Education* is rightly bestowed on Itard because of his groundbreaking work over 200 years ago.

Another influential pioneer was Itard's student Edouard Seguin (1812–1880). He developed instructional programs for youngsters whom many of his fellow professionals believed to be incapable of learning. Like his mentor Itard, Seguin was convinced of the importance of sensorimotor activities as an aid to learning. His methodology was based on a comprehensive assessment of the student's strengths and weaknesses coupled with a carefully constructed plan of sensorimotor exercises

designed to remediate specific disabilities. Seguin also realized the value of early education; he is considered one of the first early interventionists. Seguin's ideas and theories, which he described in his book *Idiocy: And Its Treatment by the Physiological Method*, provided a basis for Maria Montessori's later work with the urban poor and children with intellectual disability.

The work of Itard, Seguin, and other innovators of their time helped to establish a foundation for many contemporary practices in special education. Examples of these contributions include individualized instruction, the use of positive reinforcement techniques, and a belief in the capability of all children to learn.

The Europe of the 1800s was a vibrant and exciting place, filled with idealism and fresh ideas about equality and freedom. It also gave birth to new concepts and approaches to educating individuals with disabilities, which eventually found their way to North America (Winzer, 2014). In 1848, for example, Seguin immigrated to the United States, where in later years he helped establish an organization that was the forerunner of the American Association on Intellectual and Developmental Disabilities. American reverend Thomas Hopkins Gallaudet (1787–1851) traveled to Europe, where he studied the latest techniques and innovations for teaching children who were deaf. Upon his return, he was instrumental in helping establish the Connecticut Asylum (at Hartford) for the Education and Instruction of Deaf and Dumb Persons. This facility, founded in 1817, was the first residential school in the United States and is currently known as the American School for the Deaf. Gallaudet University, a liberal arts college devoted to the education of students with hearing impairments, is named in honor of his contributions.

Table 1.3 summarizes the work of some of the progressive European and American thinkers and activists whose ideas and convictions have significantly influenced the development of special education in the United States.

The Establishment of Institutions

By the middle of the nineteenth century, several institutions—referred to commonly as asylums, or sometimes as “schools”—were established to benefit citizens with disabilities. These facilities provided primarily protective care and management rather than treatment and education (Gargiulo & Kilgo, 2020). Typically, these early efforts were established by enlightened individuals working in concert with concerned professionals. They were frequently supported financially by wealthy benefactors and philanthropists rather than state governments. Some states, however, mainly in the Northeast, began to support the development of institutions by the middle of the nineteenth century. Such efforts were seen as an indication of the state’s progressive stature. At this time, there was no federal aid for individuals with disabilities.

Table 1.3 Pioneering Contributors to the Development of Special Education

Table 1.3 Pioneering Contributors to the Development of Special Education

The Individuals	Their Ideas
Jacob Rodrigues Pereire (1715–1780)	Introduced the idea that persons who were deaf could be taught to communicate. Developed an early form of sign language. Provided inspiration and encouragement for the work of Itard and Seguin.
Philippe Pinel (1745–1826)	A reform-minded French physician who was concerned with the humanitarian treatment of individuals with mental illness. Advocated releasing institutionalized patients from their chains. Pioneered the field of occupational therapy. Served as Itard’s mentor.

The Individuals	Their Ideas
Jean-Marc Gaspard Itard (1774–1838)	A French doctor who secured lasting fame because of his systematic efforts to educate an adolescent thought to have a severe intellectual disability. Recognized the importance of sensory stimulation.
Thomas Hopkins Gallaudet (1787–1851)	Taught children with hearing impairments to communicate through a system of manual signs and symbols. Established the first institution for individuals with hearing impairments in the United States.
Samuel Gridley Howe (1801–1876)	An American physician and educator accorded international fame because of his success in teaching individuals with visual and hearing impairments. Founded the first residential facility for individuals who are blind and was instrumental in inaugurating institutional care for children with intellectual disability.
Dorothea Lynde Dix (1802–1887)	A contemporary of Howe, Dix was one of the first Americans to champion better and more humane treatment of individuals who are mentally ill. Instigated the establishment of several institutions for individuals with mental disorders.
Louis Braille (1809–1852)	A French educator, himself blind, who developed a tactile system of reading and writing for people who were blind. His system, based on a cell of six embossed dots, is still used today. This standardized code is known as Standard English Braille.

The Individuals	Their Ideas
Edouard Seguin (1812–1880)	A pupil of Itard, Seguin was a French physician responsible for developing teaching methods for children with intellectual disability. His training emphasized sensorimotor activities. After immigrating to the United States, he helped to found an organization that was the forerunner of the American Association on Intellectual and Developmental Disabilities.
Francis Galton (1822–1911)	A scientist concerned with individual differences. As a result of studying eminent persons, he believed that genius is solely the result of heredity. Those with superior abilities are born, not made.
Alexander Graham Bell (1847–1922)	A pioneering advocate of educating children with disabilities in public schools. As a teacher of students with hearing impairments, Bell promoted the use of residual hearing and developing the speaking skills of students who are deaf.
Alfred Binet (1857–1911)	A French psychologist who constructed the first standardized developmental assessment scale capable of quantifying intelligence. The original purpose of this test was to identify students who might profit from a special education and not to classify individuals on the basis of ability. Binet also originated the concept of mental age with his student Theodore Simon.
Maria Montessori	Achieved worldwide recognition for her pioneering work with young children and youngsters with

The Individuals	Their Ideas
(1870–1952)	intellectual disability. First female to earn a medical degree in Italy. Expert in early childhood education. Demonstrated that children are capable of learning at a very early age when surrounded with manipulative materials in a rich and stimulating environment. Believed that children learn best by direct sensory experience.
Lewis Terman (1877–1956)	An American educator and psychologist who revised Binet's original assessment instrument. The result was the publication of the Stanford-Binet Intelligence Scales in 1916. Terman developed the notion of intelligence quotient, or IQ. Also famous for lifelong study of gifted individuals. Considered the grandfather of gifted education.

By the end of the nineteenth century, residential institutions for persons with disabilities were a well-established part of the American social fabric. Initially established to provide training and some form of education in a protective and lifelong environment, they gradually deteriorated in the early decades of the twentieth century for a variety of reasons, including overcrowding and a lack of fiscal resources. The mission of institutions also changed from training to custodial care and isolation. The early optimism that had initially characterized the emerging field of special education was replaced by prejudice, unwarranted scientific views, and fears, slowly eroding these institutions into gloomy warehouses for the forgotten and neglected (Meisels & Shonkoff, 2000; Winzer, 2014).

Special Education in the Public Schools

It was not until the second half of the nineteenth century and the early years of the twentieth century that special education classes began to appear in public schools. Services for children with exceptionalities began sporadically and slowly, serving only a very small number of individuals who needed services. Of course, during this era, even children without disabilities did not routinely attend school. An education at this time was a luxury; it was one of the benefits of being born into an affluent family. Many children, some as young as 5 or 6, were expected to contribute to their family's financial security by laboring in factories or working on farms. Being able to attend school was truly a privilege. It is against this backdrop that the first special education classes in public schools were established. Examples of these efforts are listed in Table 1.4.

The very first special education classrooms were **self-contained**; students were typically grouped together and segregated from the other pupils. The majority of their school day was spent with their teacher in a classroom isolated from the daily activities of the school. In some instances, even lunch and recess provided no opportunity for interacting with typical classmates. This type of arrangement characterized many special education classrooms for the next fifty years or so.

self-contained A separate classroom for children with disabilities, usually found in a public school.

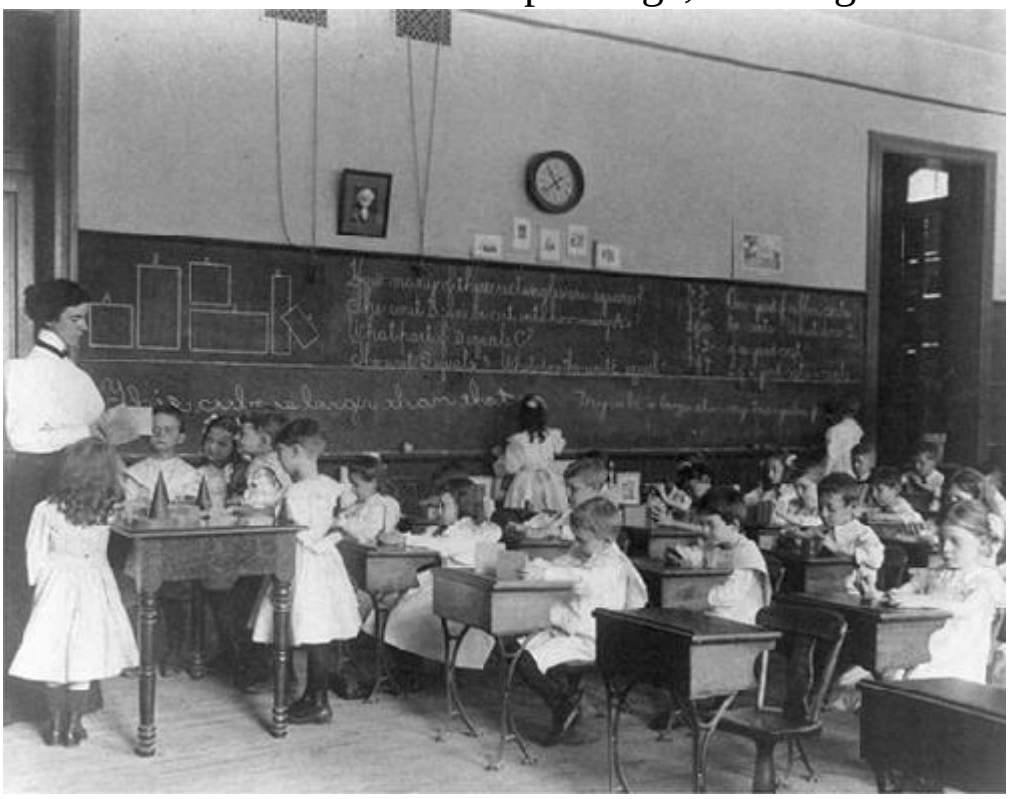
Table 1.4 The Development of Public School Classes for Children With Disabilities

Table 1.4 The Development of Public School Classes for Children With Disabilities

Year	City	Disability Served
1869	Boston, MA	Deafness

Year	City	Disability Served
1878	Cleveland, OH	Behavioral disorders
1896	Providence, RI	Intellectual disability
1898	New York, NY	Slow learners
1899	Chicago, IL	Physical impairments
1900	Chicago, IL	Blindness
1901	Worcester, MA	Giftedness
1910	Chicago, IL	Speech impairment

At one time education was a privilege, not a right.



Frances Benjamin Johnston, Library of Congress Prints and Photographs Division

After World War II, the stage was set for the rapid expansion of special education. Litigation, legislation, and leadership at the federal level, coupled with political activism and parental advocacy, helped to fuel the movement. Significant benefits for children with exceptionalities resulted from these efforts. In 1948, only about 12 percent of children with disabilities were receiving an education appropriate to their needs (Ballard, Ramirez, & Weintraub, 1982). From 1947 to 1972, the number of pupils enrolled in special education programs increased by an astonishing 716 percent, compared with an 82 percent increase in total public school enrollment (Dunn, 1973).

Beginning in the mid-1970s and continuing to the present time, children with disabilities have secured the right to receive a free appropriate public education (FAPE) provided in the most normalized setting. An education for these students is no longer a privilege; it is a right guaranteed by both federal and state laws and reinforced by judicial interpretation. We will talk about some of these laws and court cases in the next chapter. Special education over the past forty years can perhaps best be seen as a gradual movement from isolation to participation, one of steady and progressive inclusion. (See the accompanying Insights feature on page 18.)

Professionals Who Work With Individuals With Exceptionalities

It is very common for teachers to work with professionals from other disciplines. A special education may require the expertise of other individuals outside the field of education. Recall our earlier definition of a special education, which incorporates this idea and the concept of related services. IDEA, in fact, mandates that educational assessments of a student's strengths and needs be multidisciplinary and that related services be provided to meet the unique requirements of each learner. Examples of related services include:

- Audiology
- Interpreting services
- Medical services
- Nutrition
- Occupational therapy
- Orientation and mobility
- Parent counseling
- Physical therapy
- Psychology
- Recreational therapy
- Music therapy
- Rehabilitation counseling
- School nurse services
- Speech and language
- Social work
- Transportation
- Vocational education

Related services are neither complete nor exhaustive, and additional services—such as assistive technology devices or interpreters for pupils with hearing impairments—may be required if a student is to benefit from a special education. The issue of what constitutes a related service, however,

has generated some controversy among educators and school administrators. Disagreements are also common as to what kinds of services should be provided by the public schools and which services are rightfully the responsibilities of the child's parent(s).

Insights
A Timeline of Key Dates in the History of Special Education in the United States

1817 Rev. Thomas Hopkins Gallaudet becomes principal of the Connecticut Asylum for the Education and Instruction of Deaf and Dumb Persons, the first residential school in the United States.
1829 Samuel Gridley Howe establishes the New England Asylum for the Blind.
1834 Louis Braille publishes the Braille code.
1839 First teacher training program opens in Massachusetts.
1848 Howe establishes the Massachusetts School for Idiotic and Feeble-Minded Youth.
1848 Dorothea Lynde Dix calls attention to the shocking conditions of American asylums and prisons.
1869 First public school class for children with hearing impairments opens in Boston.
1876 Edouard Seguin helps organize the first professional association concerned with intellectual disability, a predecessor of today's American Association on Intellectual and Developmental Disabilities.
1897 National Education Association establishes a section for teachers of children with disabilities.
1898 Elizabeth Farrell, later to become the first president of the Council for Exceptional Children (CEC), begins a program for "backwards" or "slow learning" children in New York City.
1904 Vineland Training School in New Jersey inaugurates training programs for teachers of students with intellectual disability.
1916 Lewis Terman publishes the Stanford-Binet Intelligence Scales.
1920 Teachers College, Columbia University, begins a training program for teachers of pupils who are gifted.
1922 Organization that later would become the CEC is founded in New York City.
1928 Seeing Eye dogs for individuals with blindness are introduced in the United States.
1936 First compulsory law for testing the hearing of school-age children is enacted in New York.
1949 United Cerebral Palsy association is founded.
1950 National Association for Retarded Children is founded (known today as The Arc of the United States or simply The Arc).

1953 National Association for Gifted Children is founded.
1963 Association for Children with Learning Disabilities (forerunner to Learning Disabilities Association of America) is organized.
1972 Wolf Wolfensberger introduces the concept of normalization, initially coined by Bengt Nirje of Sweden, to the United States.
1973 PL 93–112, the Rehabilitation Act, is enacted; Section 504 prohibits discrimination against individuals with disabilities.
1975 Education for All Handicapped Children Act (PL 94–142) is passed; landmark legislation ensures, among other provisions, a free appropriate public education for all children with disabilities.
1986 Education of the Handicapped Act Amendments (PL 99–457) are enacted; mandate a special education for preschoolers with disabilities and incentives for providing early intervention services to infants and toddlers.
1990 Americans with Disabilities Act (PL 101–336) becomes law; prohibits discrimination on the basis of disability.
1990 PL 101–476, the Individuals with Disabilities Education Act (commonly known as IDEA), is passed; among other provisions, emphasizes transition planning for adolescents with disabilities.
1997 Individuals with Disabilities Education Act (PL 105–17) is reauthorized, providing a major retooling and expansion of services for students with disabilities and their families.
2001 No Child Left Behind Act (PL 107–110) is enacted; a major educational reform effort focusing on academic achievement of students and qualifications of teachers.
2004 Individuals with Disabilities Education Improvement Act (PL 108–446) is passed; aligns IDEA legislation with provisions of No Child Left Behind; modifies the individualized education program process in addition to changes affecting school discipline, due process, and evaluation of students with disabilities.
2008 Americans with Disabilities Act Amendments (PL 110–325) are enacted; expand statutory interpretation of a disability while affording individuals with disabilities greater protections.
2010 Rosa's law (PL 111–256) is enacted; removes the terms *mental retardation* and *mentally retarded* from federal health, education, and labor statues. Preferred language is now *intellectual disability*.

Source: Adapted from the 75th Anniversary Issue, *Teaching Exceptional Children, 29*(5), 1997, pp. 5–49.

There is a growing recognition of the importance of professionals working together regardless of the different disciplines they may represent. No one discipline or profession possesses all of the resources or clinical skills needed to construct the appropriate interventions and educational programs for children and young adults with disabilities, a large number of whom have complex needs. Although the idea of professionals working together in a cooperative fashion has been part of special education since the enactment

of PL 94–142 over forty years ago, we have not always been successful in implementing this idea. Obstacles range from poor interpersonal dynamics, to concerns about professional turf, to the lack of planning time, to the absence of administrative support for this concept. However, we find that professionals are increasingly working together. Professional cooperation and partnership are the key to delivering services in an efficient and integrated manner. “Serving students with disabilities in inclusive settings depends greatly on effective collaboration among professionals” (Hobbs & Westling, 1998, p. 14). McLean, Wolery, and Bailey (2004) identify several reasons why collaboration is beneficial:

- Incorrect placement recommendations are likely to be reduced.
- There is a greater likelihood that assessments will be nondiscriminatory.
- More appropriate educational plans and goals are likely to result from professional teaming.

Effective programming for students with disabilities requires meaningful involvement of teachers, parents, and related service providers.

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Collaboration is *how* people work together; it is a style of interaction that professionals choose to use in order to accomplish a shared goal (Friend & Cook, 2017). For collaboration to be effective, however, service providers must exhibit a high degree of cooperation, trust, and mutual respect and

must share the decision-making process. Additional key attributes necessary for meaningful collaboration include voluntary participation and parity in the relationship, along with shared goals, accountability, and resources (Friend & Cook, 2017). A good example of the beneficial outcomes of these collaborative efforts can be found in the development of a student's **individualized education program**, or **IEP**, which necessitates a collaborative team process involving parents, teachers, and professionals.

collaboration How individuals work together; a style of interaction among professionals.

individualized education program (IEP) A written detailed plan developed by a team for each pupil aged 3–21 who receives a special education; a management tool.

Several models are available for building partnerships among related services personnel, general education teachers, and special educators. We have chosen to examine two different approaches: consultative services and service delivery teams.

Consultative Services

A growing number of school districts are developing strategies for assisting general educators in serving children with disabilities. This effort is part of a larger movement aimed at making the neighborhood school and general education classroom more inclusive. One effective support technique is to provide assistance to general educators through consultative services. **Consultation** is a focused, problem-solving process in which one individual offers expertise and assistance to another. The intent of this activity is to modify teaching tactics and/or the learning environment in order to accommodate the needs of the individual student with disabilities. Instructional planning and responsibility thus become a shared duty among various professionals. Assistance to the general education teacher may come from a special educator, the school psychologist, a physical therapist, or any other related services provider. A vision specialist, for example, may provide suggestions on how to use various pieces of mobility equipment needed by a student who is visually impaired; a school psychologist or behavior management specialist may offer suggestions for dealing with the aggressive, acting-out behaviors of a middle school student with emotional problems. Hourcade and Bauwens (2003) refer to this type of aid as indirect consultation. In other instances, services are rendered directly to the student by professionals other than the classroom teacher. In this situation, specific areas of weakness or deficit are the target of remediation. Interventions are increasingly being provided by related services personnel in the general education classroom. The general educator also typically receives instructional tips on how to carry out the remediation efforts in the absence of the service provider.

> **consultation** A focused problem-solving process in which one individual offers support and expertise to another person.

We should also point out that consultative services are equally valuable for special educators. The diverse needs of pupils with disabilities frequently require that special education teachers seek instructional suggestions and

other types of assistance from various related services personnel. It should be obvious that no one discipline or professional possesses all of the answers. The complex demands of today's classrooms dictate that professionals work together in a cooperative fashion.

According to Pugach and Johnson (2002), consultative services are an appropriate and beneficial strategy, a means whereby all school personnel can collaboratively interact as part of their commitment to serving *all* children. Meaningful collaborative consultation requires mutual support, respect, flexibility, and a sharing of expertise. No one professional should consider himself or herself more of an expert than others. Each of the parties involved can learn and benefit from the others' expertise; of course, the ultimate beneficiary is the student. We believe that the keys to developing effective collaborative practices are good interpersonal skills coupled with professional competency and a willingness to assist in meeting the needs of all children.

Service Delivery Teams

Another way that professionals can work together is to construct a team. Special education teachers seldom work completely alone. Even those who teach in a self-contained classroom function, in some way, as part of a team (Crutchfield, 1997). Simply stated, a team consists of a group of individuals whose purpose and function are derived from a common philosophy and shared goals. Obviously, educational teams will differ in their membership; yet individual professionals, who typically represent various disciplines, appreciate their interdependence and sense of common ownership of their objective (Gargiulo & Metcalf, 2017).

Besides having members from different fields, teams will also differ according to their structure and function. Such teams are often used in evaluating, planning, and delivering services to individuals with disabilities, especially infants and toddlers. The three most common approaches identified in the professional literature (McDonnell, Hardman, & McDonnell, 2003) are multidisciplinary, interdisciplinary, and transdisciplinary teams. These approaches are interrelated and, according to Giangreco, York, and Rainforth (1989), represent a historical evolution of teamwork. This evolutionary process can be portrayed as concentric circles, with each model retaining some of the attributes of its predecessor. Figure 1.2 illustrates these various configurations.

Multidisciplinary Teams

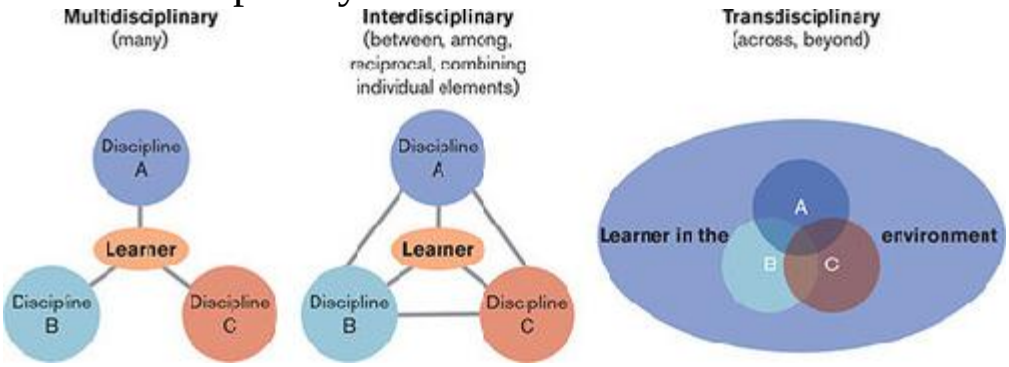
The concept of a **multidisciplinary team** was originally mandated in PL 94–142 and was reiterated in the 2004 reauthorization of IDEA (PL 108–446). This approach utilizes the expertise of professionals from several disciplines, each of whom usually performs his or her assessments, interventions, and other tasks independent of the others. Individuals contribute according to their own specialty area with little regard for the actions of other professionals. There is a high degree of professional autonomy and minimal integration. A team exists only in the sense that each

person shares a common goal. There is very little coordination or collaboration across discipline areas. Friend and Cook (2017) characterize this model as a patchwork quilt whereby different, and sometimes contrasting, information is integrated but not necessarily with a unified outcome.

multidisciplinary team A group of professionals from different disciplines who function as a team but perform their roles independent of one another.

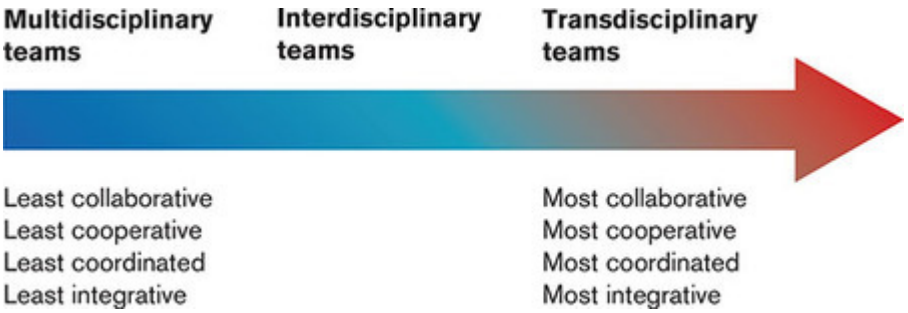
Parents of children with disabilities typically meet with each team member individually. They are generally passive recipients of information about their son or daughter. Because information flows to them from several sources, some parents may have difficulty synthesizing all of the data and recommendations from the various experts. Gargiulo and Kilgo (2020) do not consider the multidisciplinary model to be especially "family friendly."

Figure 1.2 Multidisciplinary, Interdisciplinary, and Transdisciplinary Team Models



Source: M. Giangreco, J. York, and B. Rainforth, "Providing Related Services to Learners With Severe Handicaps in Educational Settings: Pursuing the Least Restrictive Option," *Pediatric Physical Therapy, 1*(2), 1989, p. 57.

Figure 1.3 Characteristics of Teaming Models



Source: R. Gargiulo and J. Kilgo, *An Introduction to Young Children With Special Needs*, 5th ed. (Thousand Oaks, CA: Sage, 2020), p. 99.

Interdisciplinary Teams

The **interdisciplinary team** model evolved from dissatisfaction with the fragmented services and lack of communication typically associated with the multidisciplinary team model (McCormick, 2003). In this model of teaming, team members perform their evaluations independently, but program development and instructional recommendations are the result of information sharing and joint planning. Significant cooperation among the team members leads to an integrated plan of services and a holistic view of the student's strengths and needs. Greater communication, coordination, and collaboration are the distinctive trademarks of this model. Direct services such as physical therapy, however, are usually provided in isolation from one another. Families typically meet with the entire team or its representative; in many cases, a special educator performs this role.

interdisciplinary team A group of professionals from different disciplines who function as a team but work independently; recommendations, however, are the result of sharing information and joint planning.

Transdisciplinary Teams

The **transdisciplinary team** approach to providing services builds on the strengths of the interdisciplinary model. In this model, team members are committed to working collaboratively across individual discipline lines. The

transdisciplinary model is distinguished by two additional and related features: role sharing and a primary therapist. Professionals from various disciplines conduct their initial evaluations and assessments, but they relinquish their role (role release) as service providers by teaching their skills to other team members, one of whom will serve as the primary interventionist. This person is regarded as the team leader. For many children and adolescents with special needs, this role is usually filled by an educator. This individual relies heavily on the support and consultation provided by his or her professional peers. Discipline-specific interventions are still available, although they occur less frequently.

transdisciplinary team A group of professionals from different disciplines who function as a team but work independently; however, they share roles, and a peer is identified as the primary interventionist.

"The primary purpose of this approach," according to Bruder (1994), "is to pool and integrate the expertise of team members so that more efficient and comprehensive assessment and intervention services may be provided" (p. 61). The aim of the transdisciplinary model is to avoid compartmentalization and fragmentation of services. It attempts to provide a more coordinated and unified approach to assessment and service delivery. Members of a transdisciplinary team see parents as full-fledged members of the group with a strong voice in the team's recommendations and decisions (Gargiulo & Kilgo, 2020).

Figure 1.3 illustrates some of the characteristics of each team model as viewed by Gargiulo and Kilgo (2020).

Cooperative Teaching

Cooperative teaching, or co-teaching as it is sometimes called, is an increasingly popular approach for achieving inclusion (Gargiulo & Metcalf, 2017; Kramer & Murawski, 2017; Murawski, 2015). With this strategy, general education teachers and special educators work together in a cooperative manner; each professional shares in the planning and delivery of instruction to a heterogeneous group of students. Sileo (2011) defines **cooperative teaching** as

> **cooperative teaching** An instructional approach in which a special education teacher and a general educator teach together in a general education classroom to a heterogeneous group of students.

> an instructional delivery model used to teach students with disabilities and those at risk for educational failure in the least restrictive, most productive, integrated classroom setting where both general and special educators share responsibility for planning, delivering, and evaluating instruction for all students. (p. 33)

More recently, Friend and Cook (2017) characterize co-teaching as

> a service delivery option for providing specialized services to students with disabilities or other special needs while they remain in their general education classes. Co-teaching occurs when two or more professionals with distinctly different areas of expertise jointly deliver core or supplemental instruction to a diverse, blended group of students, primarily in a single physical space. (p. 159)

The aim of cooperative teaching, which is analogous to a marriage (Murawski, 2012) or a dance (Murawski & Dieker, 2013), is to create options for learning and to provide support to *all* students in the general education classroom by combining the content expertise of the general educator with the pedagogical skills of the special educator (Cook, McDuffie-Landrum, Oshita, & Cook, 2017; Smith, Polloway, Taber-Doughty, Patton, & Dowdy, 2016). General education teachers can be viewed as “masters of content” while their special education colleagues are considered “masters of access” (Sileo, 2011). Cooperative teaching can be implemented in several different ways. These approaches, as identified by Friend and Cook (2017), Murawski (2012), and Salend (2016), typically occur for set periods of time each day or on certain days of the week. Some of the more common instructional models for co-teaching are depicted in Figure 1.4. The particular strategy chosen often depends on the needs and characteristics of the pupils, curricular demands, amount of professional experience, and teacher preference, as well as such practical matters as the amount of space available. Many experienced educators use a variety of arrangements depending on their specific circumstances.

One Teach, One Observe

In this version of cooperative teaching, one teacher presents the instruction to the entire class while the second educator circulates, gathering information (data) on a specific pupil, a small group of students, or targeted behaviors across the whole class such as productive use of free time. Although this model requires a minimal amount of joint planning, it is very important that teachers periodically exchange roles to avoid one professional being perceived as the “assistant teacher.”

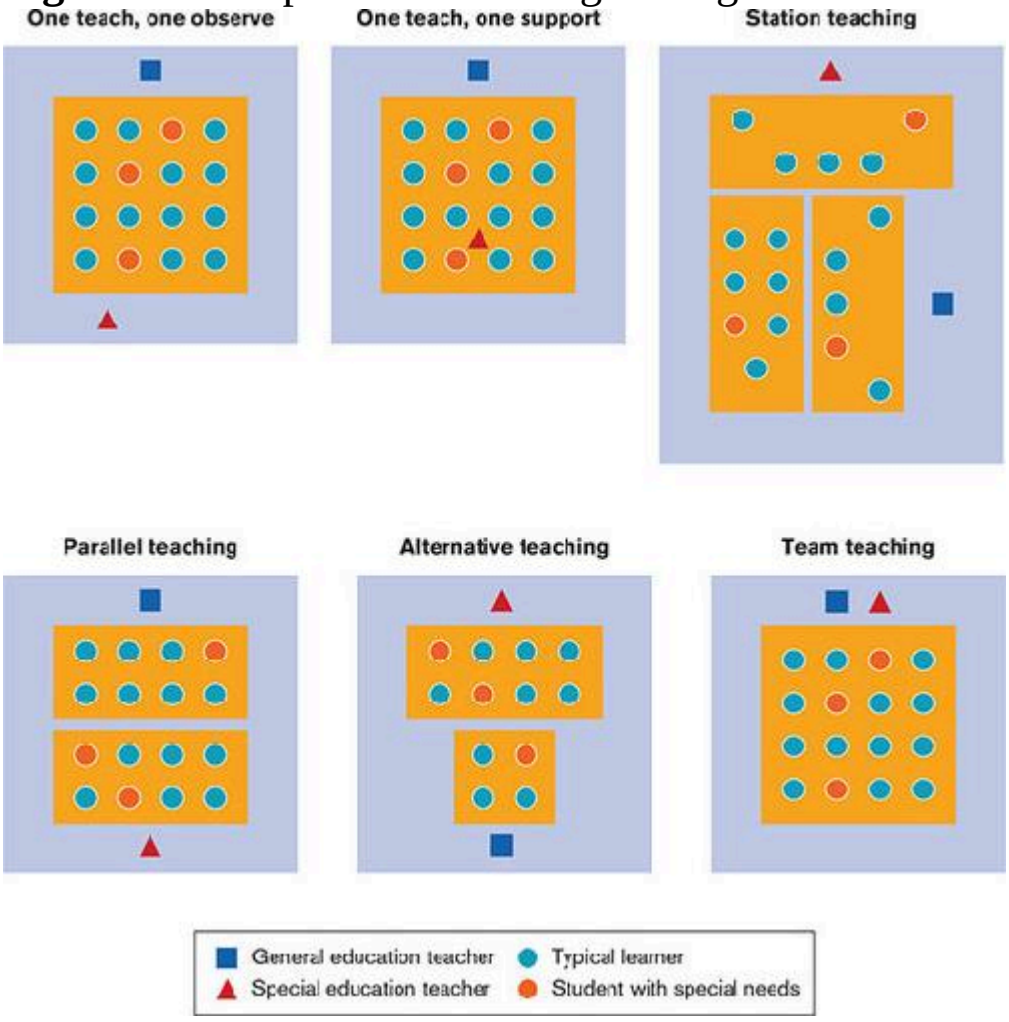
One Teach, One Support

Both individuals are present, but one teacher takes the instructional lead while the other provides support and assistance to the students. It is important that one professional (usually the special educator) is not always expected to function as the assistant; rotating roles can help alleviate this potential problem.

Station Teaching

In this type of cooperative teaching, the lesson is divided into two or more segments and presented in different locations in the classroom. One teacher presents one portion of the lesson while the other teacher provides a different portion. Then the groups rotate, and the teachers repeat their information to new groups of pupils. Depending on the class, a third station can be established where students work independently or with a “learning buddy” to review material. Station teaching is effective at all grade levels.

Figure 1.4 Cooperative Teaching Arrangements



Source: Adapted from M. Friend and L. Cook, *Interactions: Collaboration Skills for School Professionals*, 8th ed. (Upper Saddle River, NJ: Pearson Education, 2017), p. 166.

Adapted from W. Murawski, “Creative Co-teaching” in W. Murawski and K. Scott (Eds.), *What Really Works in Secondary Education* (Thousand Oaks, CA: Corwin, 2015), p. 209.

Parallel Teaching

This instructional arrangement lowers the teacher–pupil ratio. Instruction is planned jointly but is delivered by each teacher to half of a heterogeneous group of learners. Coordination of efforts is crucial. This format lends itself to drill-and-practice activities or projects that require close teacher supervision. As with station teaching, noise and activity levels may pose problems.

Alternative Teaching

Some students benefit from small-group instruction; alternative teaching meets that need. With this model, one teacher provides instruction to the larger group while the other teacher interacts with a small group of pupils. Although commonly used for remediation purposes, alternative teaching is equally appropriate for enrichment activities and in-depth study. Teachers need to be cautious, however, that children with disabilities are not exclusively and routinely assigned to the small group; all members of the class should participate periodically in the functions of the smaller group.

Team Teaching

In this type of cooperative teaching, both teachers share the instructional activities equally. Each teacher, for example, may take turns leading a discussion about the causes of World War II, or one teacher may talk about multiplication of fractions while the co-teacher gives several examples illustrating this concept. This form of cooperative teaching, sometimes called interactive teaching (Walther-Thomas, Korinek, McLaughlin, & Williams, 2000), requires a significant amount of professional trust and a high level of commitment.

Cooperative teaching should not be viewed as a panacea for meeting the multiple challenges frequently encountered when serving students with disabilities in general education classrooms; it is, however, one mechanism for facilitating successful inclusion. It is important to note that co-teaching per se is a service delivery model, not an intervention tactic (Scruggs & Mastropieri, 2017). According to researchers (Kramer & Murawski, 2017; Potts & Howard, 2011; Sileo, 2011), some of the key ingredients required for successful cooperative teaching include the following:

- Adequate planning time
- Administrative support
- Communication skills
- Flexibility and creativity
- Mutual respect
- Personal and professional compatibility
- Shared instructional philosophy
- Content knowledge
- Voluntary participation

Today’s classrooms serve all children.

©iStockphoto.com/Bonnie Jacobs

Teachers also need to openly address potential obstacles, such as workload issues, classroom noise, daily chores, and time management, if co-teaching is to be successful (Sileo, 2011; Smith et al., 2016).

To ensure that co-teaching is efficient and effective, Reinhiller (1996) recommends that teachers address the following five questions:

- Why do we want to co-teach?
- How will we know whether our goals are being met?
- How will we communicate and document the collaboration?
- How will we share responsibility for the instruction of all students?
- How will we gain support from others? (p. 46)

Keefe, Moore, and Duff (2004) offer the following guidelines for creating and maintaining a successful co-teaching experience:

- *Know yourself*—recognize your strengths and weaknesses; acknowledge preconceived notions about teaching in an inclusive setting.
- *Know your partner*—foster a friendship; accept each other's idiosyncrasies; appreciate differences in teaching styles.
- *Know your students*—discover the students' interests; listen to their dreams; embrace acceptance.
- *Know your "stuff"*—share information and responsibility; jointly create IEPs; be knowledgeable about classroom routines.

Like Murawski and Dieker (2004), we believe that in the final analysis the key question that must be answered is, “Is what we are doing good for the both of us and good for our students?” See Table 1.5 for an award-winning teacher’s recommendations for facilitating successful co-teaching experiences.

Table 1.5 Recommendations for Successful Co-teaching

Table 1.5 Recommendations for Successful Co-teaching

For Working With Children With Disabilities	For Working With General Education Teachers
• When you construct your plan, think about how you can make it visual, auditory, tactile, and kinesthetic. You’ll have a better chance of meeting different learning styles. • Think about the most important thing all students need to learn, and then think about how you can break the task into smaller parts for some students and make it more challenging for students who are ready to move ahead. • Be keenly aware of student strengths, and plan to find a way for each student to be successful academically every day. • Working with a peer/buddy is often a helpful strategy.	• Find teachers who welcome your students and whom you enjoy working with if possible. It is helpful to find co-teachers who have different strengths so you can complement each other. • Faithfully plan ahead with these teachers—at least a week ahead. • Be willing to do more than your share at first if necessary to get a solid footing for the year. It will pay off. • Keep communication open and frequent. Use positive language with each other as much as possible. Brainstorm solutions to challenges together, and try different solutions.

For Working With Children With Disabilities	For Working With General Education Teachers
• Mix up your groups now and then. A student may need a different group for reading than for math. Try not to "label" anyone. • Children with disabilities (many children actually) need very clear, precise directions. Pair auditory with visual directions if possible. Students with more severe impairments may need to see objects. • It may be helpful to give only one direction at a time. This doesn't mean the pace has to be slow. In fact, a fast pace is often quite effective. Using signals (e.g., for getting attention, transitions) can also be very helpful. • Be consistent. • Notice students being "good"—offer verbal praise or perhaps a small positive note. • Have high expectations for all children.	• Document the work you do with students. Help with assessment as much as possible. • Attend open houses, parent conferences, and other similar meetings so the parents view you as part of the classroom community. • Look for the good in the teacher(s) and students, and tell them when you see a "best practice." • If you don't know the answer to something, ask. If you don't know some of the content very well, study. Find out who does something well, and observe him or her if it is a skill you need to work on. • When you say you will do something, be sure you follow through.

Source: D. Metcalf, East Carolina University and Pitt Co. Schools. The Council for Exceptional Children (CEC) 2004 Clarissa Hug Teacher of the Year.

Universal Design for Learning

In today's climate of high-stakes testing and calls for greater student and teacher accountability, full access to the general education curriculum for students with disabilities is receiving growing attention. One way of ensuring access to, along with participation and progress in, the general education curriculum, as required by PL 108–446, is via the concept of universal design. Originally an idea found in the field of architectural studies, **universal design for learning (UDL)** can be simply stated as "the design of instructional materials and activities that allows the learning goals to be achievable by individuals with wide differences in their abilities to see, hear, speak, move, read, write, understand English, attend, organize, engage, and remember" (Orkwis & McLane, 1998, p. 9). Universal design allows education professionals the flexibility necessary to design curriculum, instruction, and evaluation procedures capable of meeting the needs of *all* students (Meyer, Rose, & Gordon, 2014). UDL is accomplished by means of flexible curricular materials and activities that offer alternatives to pupils with widely varying abilities and backgrounds. These adaptations are built into the instructional design rather than added on later as an afterthought. UDL provides equal access to learning, not simply equal access to information. It assumes that there is no one method of presentation or expression, which provides equal access for *all* learners. Learning activities and materials are purposely designed to allow for flexibility and offer various ways to learn (Florian, 2014; Scott, McGuire, & Shaw, 2003). Table 1.6 presents some of the many different ways in which a teacher could present a lesson.

universal design for learning (UDL) The design of curriculum materials, instructional activities, and evaluation procedures that can meet the needs of learners with widely varying abilities and backgrounds.

UDL is envisioned as an instructional resource, a vehicle for diversifying instruction in order to deliver the general education curriculum to each pupil. UDL does not remove academic challenges; it removes barriers to access. Simply stated, UDL is just good teaching (Ohio State University Partnership Grant, 2019). UDL encourages teachers to design curriculum, learning environments, and assessment procedures that are "smart from the start" (Pisha & Coyne, 2001). By doing so, educators are able to significantly impact student learning.

Table 1.6 Multiple Methods of Presenting Instructional Content

Table 1.6 Multiple Methods of Presenting Instructional Content

Auditory	Visual	Tactile/Kinesthetic	Affective	Technology
Lecture	Video clips	Field trip	Small-group work	iPad Videoconferencing
Discussion	Sign language Speech reading	Sign language Gestures	Cross-age tutoring Peer-mediated instruction	Electronic discussion boards Online chat rooms
Song	Watching a play	Drawing	Role-play	Smartphone
Read-aloud	Books	Braille books		eBooks eText Tablet
Questioning	Graph, table, chart Slide show Transparency Whiteboard	Demonstration Role-play Dance Games Manipulatives Building an object		Spreadsheet PowerPoint Overhead projector Smartboard

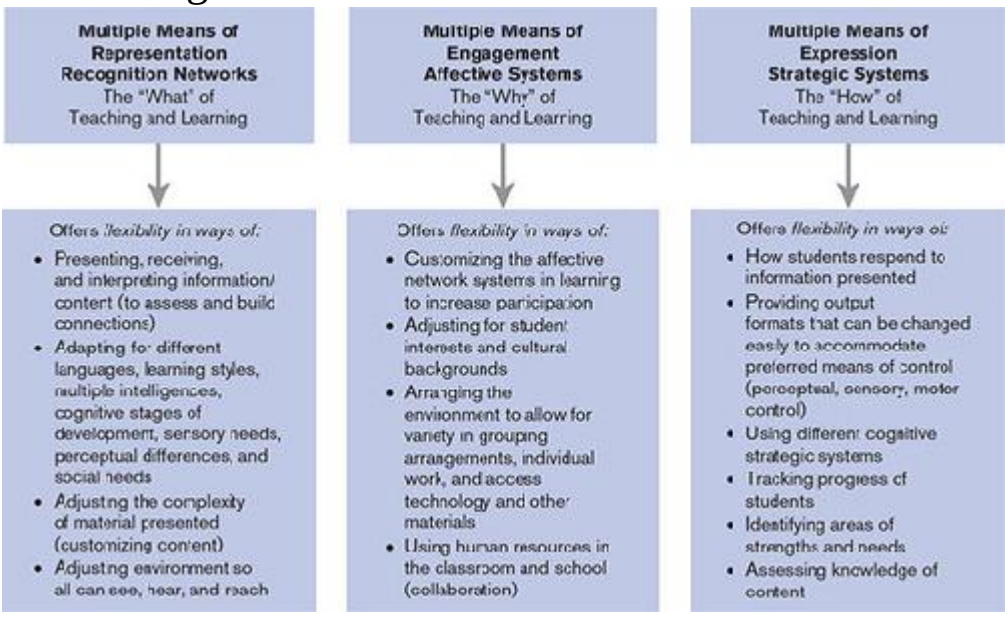
Note: Not an exhaustive list; some methods may fit more than one category.

According to Wehmeyer, Lance, and Bashinski (2002), “universally designed curriculum takes into account individual student interests and preferences and individualizes representation, presentation, and response aspects of the curriculum delivery accordingly” (p. 230). It offers the opportunity for creating a curriculum that is sufficiently flexible or tailored to meet the needs of the individual learner. Universal design provides a range of options for accessing, using, and engaging learning materials—explicitly acknowledging that no one option will work for all

Exceptionality Across the Life Span

When we talk about special education, most people envision services for children of school age, yet the field embraces a wider range of individuals than students between the ages of 6 and 18. In recent years, professionals have begun to focus their attention on two distinct populations: infants/toddlers and preschoolers with special needs, and students with disabilities at the secondary level who are about to embark on adulthood. Meeting the needs of pupils at both ends of the spectrum presents myriad challenges for educators as well as related services personnel; however, professionals have a mandate to serve individuals across the life span.

Figure 1.5 Three Essential Qualities of Universal Design for Learning


Multiple Means of Representation
Recognition Networks
The "What" of Teaching and Learning
Offers flexibility in ways of:
• Presenting, receiving, and interpreting information/ content (to assess and build connections)
• Adapting for different languages, learning styles, multiple intelligences, cognitive stages of development, sensory needs, perceptual differences, and social needs
• Adjusting the complexity of material presented (customizing content)
• Adjusting environment so all can see, hear, and reach
Multiple Means of Engagement
Affective Systems
The "Why" of Teaching and Learning
Offers flexibility in ways of:
• Customizing the affective network systems in learning to increase participation
• Adjusting for student interests and cultural backgrounds
• Arranging the environment to allow for variety in grouping arrangements, individual work, and access technology and other materials
• Using human resources in the classroom and school (collaboration)
Multiple Means of Expression
Strategic Systems
The "How" of Teaching and Learning
Offers flexibility in ways of:
• How students respond to information presented
• Providing output formats that can be changed easily to accommodate preferred means of control (perceptual, sensory, motor control)
• Using different cognitive strategic systems
• Tracking progress of students
• Identifying areas of strengths and needs
• Assessing knowledge of content

Source: R. Gargiulo and D. Metcalf, *Teaching in Today's Inclusive Classrooms*, 3rd ed. (Boston, MA: Cengage Learning, 2017), p. 44. Reproduced by permission. http://www.cengage.com/permissions

Our purpose at this point is only to introduce some of the concepts and thinking about these two age groups. In later chapters, we will explore more fully many of the issues specific to young children with special needs as well as services for adults with disabilities.

Infants/Toddlers and Preschoolers With Special Needs

Prior to PL 94–142, services for infants, toddlers, and preschoolers with disabilities or delays were virtually unheard of. In many instances, parents had to seek out assistance on their own; public schools did not routinely offer early intervention or other supports. As we noted earlier in this chapter, even with the enactment of the Education for All Handicapped Children Act, more than half the states did not provide a special education for preschoolers with special needs. Today, professionals realize the importance and value of intervening in the lives of young children. In fact, the earlier that intervention is begun, the better the outcomes (Bruder, 2010; Sandall, Hemmeter, McLean, & Smith, 2005). “Without early intervention many [young] children with disabilities fall further and further behind their nondisabled peers, and minor delays in development often become major delays by the time the child reaches school age” (Bicard & Heward, 2016, p. 227). Providing services to our youngest citizens with disabilities or delays has become a national priority. Presently, well over 1.1 million children from birth to age 5 receive some form of intervention or special education (U.S. Department of Education, 2018).

Young children with special needs greatly benefit from early intervention.

FatCamera/E+/Getty Images

The Education of the Handicapped Act Amendments of 1986 (PL 99–457) are largely responsible for the rapid development of services for youngsters with disabilities or delays and those children who are at risk for future problems in learning and development. PL 99–457 is concerned with the family of the youngster with special needs as well as the child. This law clearly promotes parent–professional collaboration and partnerships. Parents are empowered to become decision makers with regard to programs and services for their son or daughter. We can see this emphasis in the **individualized family service plan**, or **IFSP** as it is commonly known. Similar to an IEP for older students with disabilities, the IFSP is much more family focused and reflective of the family's resources, priorities, and concerns. (Both of these documents will be fully discussed in Chapter 2.)

individualized family service plan (IFSP) A written plan developed by a team that coordinates services for infants and toddlers and their families.

When professionals talk about providing services to very young children with disabilities or special needs, a distinction is generally made between two frequently used terms: *early intervention* and *early childhood special education.* **Early intervention** is typically used, according to Gargiulo and Kilgo (2020), to refer to the delivery of a coordinated and comprehensive package of specialized services to infants and toddlers (birth through age 2) with developmental delays or at-risk conditions and their families. **Early childhood special education** is often used to describe the provision of customized services uniquely crafted to meet the individual needs of youngsters with disabilities between 3 and 5 years of age.

early intervention The delivery of a coordinated and comprehensive package of specialized services to infants and toddlers with developmental delays or at-risk conditions and their families.

early childhood special education Provision of customized services uniquely crafted to meet the individual needs of youngsters with disabilities ages 3 to 5.

Early intervention represents a consortium of services, not just educational assistance but also health care, social services, family supports, and other benefits. The aim of early intervention is to affect positively the overall development of the child—his or her social, emotional, physical, and intellectual well-being. We believe that incorporating a “whole child” approach is necessary because all of these elements are interrelated and dependent on one another (Zigler, 2000).

Adolescents and Young Adults With Disabilities

Preparing our nation's young people for lives as independent adults has long been a goal of American secondary education. This objective typically includes the skills necessary for securing employment, pursuing postsecondary educational opportunities, participating in the community, living independently, and engaging in social/recreational activities, to mention only a few of the many facets of this multidimensional concept. Most young adults make this passage, or **transition**, from one phase of their life to the next without significant difficulty. Unfortunately, this statement is not necessarily true for many secondary students with disabilities. Full participation in adult life is a goal that is unattainable for a large number of citizens with disabilities. Consider the implications of the following representative facts gathered from various national surveys:

> **transition** A broad term used to describe the movement of an individual from one educational environment to another, from one class to another, or from one phase of life (high school) to another (independent adulthood).

- Only 27 percent of adults with disabilities were employed in 2015 compared to 77 percent of individuals without a disability (National Center for Education Statistics, 2017).
- Only 60 percent of youths with disabilities are competitively employed after secondary school (National Longitudinal Transition Study 2, 2011).
- Nationally, approximately 65 percent of students with disabilities graduate high school—almost 21 points lower than their typical classmates (Civic Enterprises/Johns Hopkins University, 2018).
- Only 39 percent of young adults with disabilities were enrolled in a postsecondary institution two years after high school graduation compared to 60 percent of their same-age peers (Sanford et al., 2011).

The picture that the preceding data paint is rather bleak. For many special educators, this profile is totally unacceptable and unconscionable. What do these statistics say about the job professionals are doing in preparing

adolescents with disabilities for the adult world? Can we do better? Obviously, we need to. It is abundantly clear that a large percentage of young people with disabilities have difficulty in making a smooth transition from adolescence to adulthood and from high school to adult life in their community. What happens to these individuals after they leave school is a crucial question confronting professionals and parents alike. This issue of transition has become one of the dominant themes in contemporary special education. Rarely has one topic captured the attention of the field for such a sustained period of time. Transitioning from high school to the many dimensions of independent adulthood has become a national educational priority.

Transition Defined

Several different definitions or interpretations of transition can be found in the professional literature. One of the earliest definitions was offered by Madeleine Will (1984), assistant secretary of education in the Office of Special Education and Rehabilitative Services (OSERS). Will viewed transition as

> a period that includes high school, the point of graduation, additional postsecondary education or adult services, and the initial years in employment. Transition is a bridge between the security and structure offered by the school and the opportunities and risks of adult life. . . . The transition from school to work and adult life requires sound preparation in the secondary school, adequate support at the point of school leaving, and secure opportunities and services, if needed, in adult situations. (p. 3)

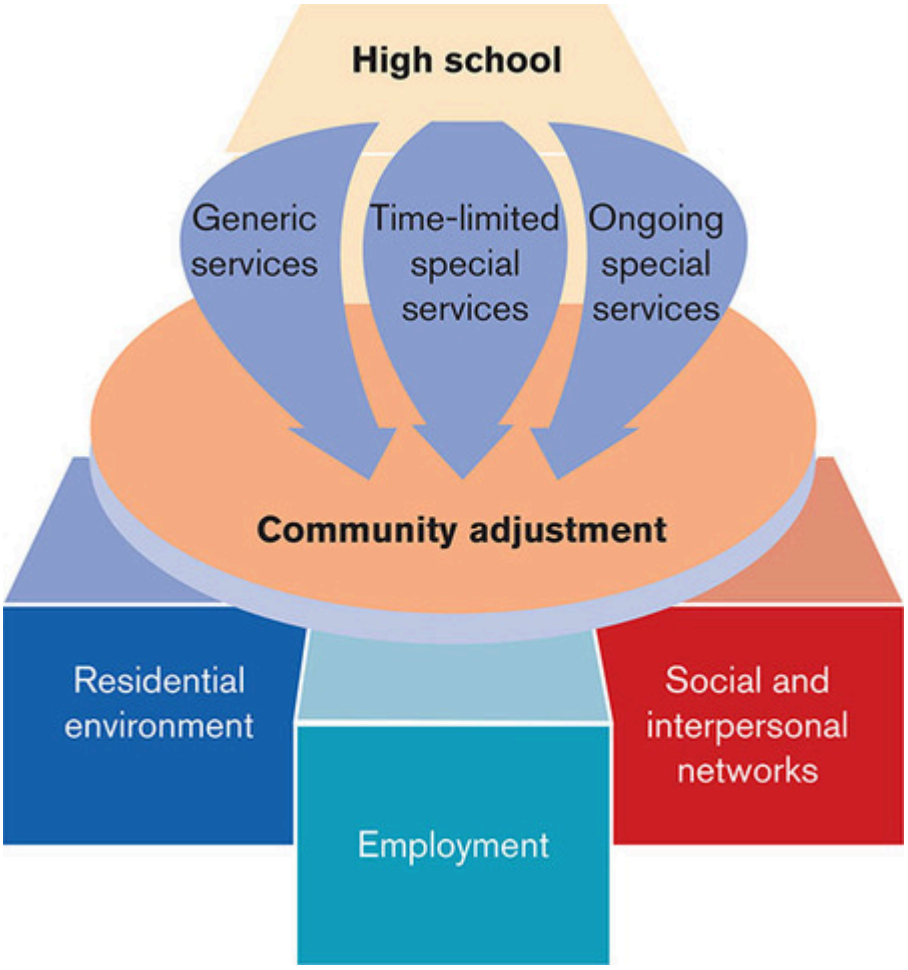
According to Will (1984), three levels of services are involved in providing for an individual to move successfully from school to adult employment. The top level, “no special services,” refers to those generic services available to any citizen within the community, even if special accommodations may be necessary. An example of this form of support

might be educational opportunities at a local community college or accessing state employment services. The middle rung of this model, “time-limited services,” involves specialized, short-term services that are typically necessary because of a disability. Vocational rehabilitation services best illustrate this level of the model. “Ongoing services” constitute the third level of this early model. This type of ongoing employment support system was not widely available in the early 1980s. However, it represented an integral component of Will’s paradigm, and these services were promoted through federally funded demonstration projects (Halpern, 1992).

Commonly referred to as the “bridges model,” Will’s (1984) proposal sparked almost immediate debate and controversy from professionals who considered the OSERS interpretation of transition too restrictive or narrow (Brown et al., 1988; Clark & Knowlton, 1988; Halpern, 1985). Adult adjustment, they argued, must be viewed as more than just employment. We agree with this point of view. Halpern (1985), for example, believes it is wrong to focus exclusively on employment. Instead, he proposes that the primary goal of transition be community adjustment, which includes “a person’s residential environment and the adequacy of his or her social and interpersonal network. These two dimensions are viewed as being no less important than employment” (p. 480). Thus, living successfully in the community should be the ultimate goal of transition. Halpern’s reconfiguration of the OSERS model is portrayed in Figure 1.6.

Today, transition is viewed in much broader terms than Will (1984) originally proposed. This concept presently includes many different aspects of adult adjustment and participation in community life. Employment, personal competence, independent living, social interaction, and community adjustment are just some of the factors associated with the successful passage from school to adult life for secondary students receiving a special education.

Figure 1.6 Halpern’s Model of Transition Goals



Source: A. Halpern, "Transition: A Look at the Foundations," *Exceptional Children, 51*(6), 1985, p. 481. Copyright © 1985 by the Council for Exceptional Children. Reprinted with permission.

Federal Definition of Transition Services

PL 108–446 (IDEA 2004) stipulates that each student with a disability is to receive **transition services**, which are defined as a coordinated set of activities for a student with a disability that

transition services Individualized and coordinated services that assist the adolescent with a disability to successfully move from school to postschool activities.

A. is designed within a results-oriented process, focused on improving the academic and functional achievement of the child with a disability to facilitate the child's movement from school to postschool activities, including postsecondary education, vocational training, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation;
B. is based on the child's needs, taking into account the child's strengths, preferences, and interests; and
C. includes instruction, related services, community experiences, the development of employment and other postschool adult living objectives, and, when appropriate, acquisition of daily living skills and functional vocational evaluation. [20 U.S.C. § 1401 (34)]

Preparing young adults with disabilities to enter the workforce is an important role for schools.

Mikael Vaisanen/Corbis/Getty Images Plus/Getty Images

Individualized Transition Plan

To ensure that the mandate for transition services is met, IDEA 2004 requires that each student, beginning no later than age 16 (and annually

thereafter), have a statement of transition services incorporated into his or her IEP. Commonly referred to in education circles as an **individualized transition plan (ITP)**, this document must include postsecondary goals as well as a statement of the linkages and/or responsibilities that various agencies such as employment services, vocational rehabilitation, and the school system will assume in order to move the individual smoothly from school to living and working in the community. The ITP must also include a statement of transition service needs and courses of study that are intended to enhance the student's postschool success. Simply stated, an ITP is an annually updated instrument of coordination and cooperation. It is a working document that identifies the range of services, resources, supports, and activities that each student may require during the transition process.

individualized transition plan (ITP) An individualized plan with identified goals and objectives used to prepare the student in making the transition from high school to work (or college).

Transition Challenges

We conclude this introduction to transitioning adolescents from school to adult life by briefly examining two related areas of concern for professionals. The first issue is how to create a curriculum that prepares students to participate fully in all aspects of community life. Such a curriculum would need to address not only educational needs but also work behaviors, independent living skills, and recreational and leisure time activities. For some secondary students, the traditional high school curriculum is often inadequate for equipping them for life after school. As educators, we must increase the relevance of the curriculum. If we are to prepare students for successful postschool adjustment, then secondary programming for students with disabilities should reflect the basic functions of adult life—work, personal management, and leisure. The goal, according to McDonnell et al. (2003), is to link curricular content to the demands of living and working in the community as an independent adult. If we are to meet this challenge, our instructional strategies must change. Accompanying this shift from remedial academics to functional skills is the

requirement that instruction occur in community-based settings—that is, in the natural environment where the skills are to be exhibited (Halpern, 1992). Research evidence (Hartman, 2009) supports the value and benefit of teaching skills in the actual environment in which they are to be performed.

The issue of curricular redesign must be balanced, however, by the increasing number of calls for greater emphasis on academic excellence. Thus, the second challenge for professionals is how to respond to the demands for higher standards while still preparing students for life after high school.

Beginning in the mid-1980s, various national reports strongly criticized the American educational system (Goodlad, 1984; National Commission on Excellence in Education, 1983). Major areas of concern included the declining academic achievement of U.S. students in comparison to youths from other industrialized nations, adult illiteracy, dropout rates, and readiness for school. These concerns were initially addressed in 1989 by the nation's governors, meeting at the first-ever Education Summit. Several broad national goals emerged from this historic conference, establishing a blueprint for educational progress. In March 1994, Congress enacted the Goals 2000: Educate America Act (PL 103–227), which translated these reform efforts into law. Similarly, in 2001, Congress reauthorized the Elementary and Secondary Education Act, popularly known as No Child Left Behind (PL 107–110). This legislation (to be discussed in Chapter 2) reflects President George W. Bush's commitment to educational reform and greater accountability. This ambitious law requires that all pupils, including those in special education, eventually demonstrate proficiency in reading and mathematics, with science eventually being included.

Consequently, one question now confronting educators, parents, and even students is "What is an appropriate curriculum for students with disabilities at the secondary level, given this climate of tougher academic standards and greater educational accountability?" Should the curriculum reflect an academic emphasis, should it focus on preparation for adult life, or is it possible to merge these two potentially conflicting points of view?

Obviously, these are difficult questions, with no easy solution. What is best for one student may not be appropriate for another. Transition programs must be customized to the individual needs and desired outcomes of each young adult.

We believe an argument can be made that transitioning is for *all* students, not just those with disabilities. Transitioning can play a role in the overall educational reform movement. Many students, with and without disabilities, will require support and assistance as they cross the bridge from school to adult life in the community. Our job as educators is to make this journey as successful as possible for each and every one of our pupils.

Chapter in Review

Definitions and Terminology (Learning Objective 1.1)

- Exceptional children are individuals who resemble other children in many ways but differ from societal standards of normalcy. These differences may be due to physical, sensory, cognitive, or behavioral characteristics.
- When educators talk about a student with a disability, they are referring to an inability or incapacity to perform a particular task or activity in a specific way because of sensory, physical, cognitive, or other forms of impairment.
- The term *handicap* should be restricted to describing the consequence or impact of the disability on the person, not the condition itself.
- A special education can be defined as a customized instructional program designed to meet the unique needs of the pupil. A special education may include the use of specialized materials, equipment, services, or instructional strategies.

Categories and Labels (Learning Objective 1.2)

- The Individuals with Disabilities Education Improvement Act of 2004 (PL 108–446) identifies thirteen disability categories.
- Empirical investigations fail to provide clear-cut answers to questions about the effects of labels on children and young adults with disabilities.

Prevalence of Children and Adults With Disabilities (Learning Objective 1.3)

- At the present time, over 6.0 million students between the ages of 6 and 21 are receiving a special education. Of this total, approximately 40 percent are individuals with learning disabilities.
- Collectively, states are providing a special education to over 7.1 million individuals from birth through age 21.

A Brief History of the Development of Special Education (Learning Objective 1.4)

- Historically speaking, the foundation of contemporary societal attitudes can be traced to the contributions of various reform-minded eighteenth- and nineteenth-century European educators, philosophers, and humanitarians.
- By the middle of the nineteenth century, several specialized institutions were established in the United States.
- It was not until the latter part of the nineteenth century and early years of the twentieth century that special education classes began to appear in public schools.

Professionals Who Work With Individuals With Exceptionalities (Learning Objectives 1.5 and 1.6)

- Educators frequently work with a variety of other professionals representing several distinct disciplines. These individuals provide a wide variety of related services, ranging from occupational therapy to therapeutic recreation to psychological services and even transportation to and from school.
- Providing consultative services to both general and special educators is one way that school districts are attempting to meet the increasingly complex demands of serving students with disabilities.
- The three teaming models most frequently mentioned in the professional literature are multidisciplinary, interdisciplinary, and transdisciplinary teams.

Cooperative Teaching (Learning Objective 1.7)

- Cooperative teaching, or co-teaching as it is sometimes called, is an increasingly popular approach for facilitating successful inclusion.
- Cooperative teaching is an instructional strategy designed to provide support to all students in the general education classroom.
- Teachers can choose from multiple models of cooperative teaching depending on their specific circumstances.

Universal Design for Learning (Learning Objective 1.8)

- Universal design for learning is an instructional resource designed to meet the needs of all students; it provides equal access to learning.
- Universal design for learning allows for multiple means of representation, engagement, and expression.

Exceptionality Across the Life Span (Learning Objective 1.9)

- Forty years ago, services for children with disabilities younger than age 6 were virtually unheard of. Today, however, well over 1 million children younger than 6 receive some type of intervention or special education.
- The issue of transition has become one of the dominant themes in contemporary special education.
- Every high school student who is enrolled in a special education program is to have an individualized transition plan as part of his or her individualized education program.

Study Questions

1. How is the concept of normalcy related to the definition of children identified as exceptional?
2. Differentiate between the terms *disability* and *handicap*. Provide specific examples for each term.
3. What is a special education?
4. Name the thirteen categories of exceptionality presently recognized by the federal government.
5. Compare and contrast arguments for and against the practice of labeling pupils according to their disability.
6. How are the terms *prevalence* and *incidence* used when discussing individuals with disabilities?
7. Identify contributing factors to the growth of the field of special education.
8. Why do you think the federal government has not mandated special education for students who are gifted and talented?
9. What role did Europeans play in the development of special education in the United States?
10. What are related services, and why are they important for the delivery of a special education?
11. List the characteristics that distinguish multidisciplinary, interdisciplinary, and transdisciplinary educational teams. What are the advantages and disadvantages of each teaming model?
12. How can cooperative teaching benefit students with and without disabilities?
13. Explain how universal design for learning benefits all students.
14. Why is transitioning important for students with disabilities at the secondary level?
15. What challenges do professionals face as they prepare adolescents to move from school to adult life in the community?

Key Terms

exceptional children, 4
disability, 5
handicap, 5
handicapism, 5
developmental delay, 6
at risk, 7
special education, 8
related services, 8
category, 9
noncategorical, 10
incidence, 11
prevalence, 11
self-contained, 16
collaboration, 20
individualized education program (IEP), 20
consultation, 20
multidisciplinary team, 21
interdisciplinary team, 22
transdisciplinary team, 22
cooperative teaching, 23
universal design for learning (UDL), 27
individualized family service plan (IFSP), 29
early intervention, 29
early childhood special education, 29
transition, 30
transition services, 32
individualized transition plan (ITP), 32

Learning Activities

1. Keep a journal for at least four weeks in which you record how individuals with disabilities are represented in newspapers, magazines, television commercials, and other media outlets. Are they portrayed as people to be pitied, or as superheroes? Is

"people first" language used? Do your examples perpetuate stereotyping, or are they realistic representations of persons with disabilities? In what context was each individual shown? What conclusions might a layperson draw about people with disabilities?

2. Visit an elementary school and a high school in your community. Talk to several special educators at each location. Find out how students with disabilities are served. What related services do these pupils receive? Ask each teacher to define the term *special education*. How are regular and special educators collaborating to provide an appropriate education for each learner? What strategies and activities are secondary teachers incorporating to prepare their students for life after graduation?
3. Obtain prevalence figures for students enrolled in special education programs in your state. How do these data compare to national figures? Identify possible reasons for any discrepancies. Do the figures suggest any trends in enrollment? Which category of exceptionality is growing the fastest?
4. Interview a veteran special educator (someone who has been teaching since the early 1990s). Ask this person how the field of special education has changed over the past decades. In what ways are things still the same? What issues and challenges does this teacher confront in his or her career? What is this person's vision of the future of special education?
5. Contact the office of disability support at your college or university. What types of services does it provide to students with disabilities? Volunteer to serve in this program.

Reflecting on Standards

The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Learning Environments (CEC Initial Preparation Standard 2.1)

Reflect on what you have learned about co-teaching in this chapter. If you were to have a student with special needs in your class, which of these models (team teaching, station teaching, parallel teaching, or alternative teaching) would you want to integrate into your teaching? What would be the advantages and disadvantages to you and your class in incorporating these strategies?

Focus on Collaboration (CEC Initial Preparation Standard 7.1)

Reflect on what you have learned in this chapter about the importance of building partnerships to create students' individualized education programs. What collaborative skills do you have that will benefit you in this type of teamwork? What skills do you need to improve upon?

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2 Policies, Practices, and Programs

istock/Susan Chiang

Learning Objectives

After reading Chapter 2, you should be able to:

2.1 **Identify** the court cases that led to the enactment of Public Law 94–142.
2.2 **Summarize** the key components of the Individuals with Disabilities Education Act (IDEA) from 1975 to 2004.
2.3 **Explain** the legislative intent of Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act.
2.4 **Compare** inter- and intraindividual differences.
2.5 **Describe** the difference between norm- and criterion-referenced assessments.
2.6 **Identify** the steps in the referral process for the delivery of special education services.
2.7 **List** the key components of an individualized education program (IEP) and an individualized family service plan (IFSP).
2.8 **Define** *mainstreaming, least restrictive environment, regular education initiative,* and *full inclusion*.

Many of the policies, procedures, and practices that are common in special education today have resulted from the interaction of a variety of forces, situations, and events. One example is the role that litigation and legislation have played in the development of the field. Coupled with this activity was the gradual realization by professionals that many of our earlier educational customs and methods were ineffective in meeting the needs of individuals with disabilities and their families. Several currently accepted practices, such as nondiscriminatory assessment, placement in a least restrictive environment, and meaningful parent involvement, reflect this correction in thinking.

The purpose of this chapter is to review a variety of contributions that have helped to shape contemporary special education. Besides the impact of national legislation and the courts, we will examine the identification and assessment of individual differences, instructional programming, and models of service delivery.

Litigation and Legislation Affecting Special Education

Over the past several decades, the field of special education has been gradually transformed and restructured, largely as a result of judicial action and legislative enactments. These two forces have been powerful tools in securing many of the benefits and rights presently enjoyed by more than 7.1 million school-age and younger children with disabilities.

Securing the opportunity for an education has been a slowly evolving process for students with disabilities. What is today seen as a fundamental right for these children was, at one time, viewed strictly as a privilege. Excluding students with disabilities from attending school was a routine practice of local boards of education in the 1890s and early 1900s. In 1893, local school officials in Cambridge, Massachusetts, denied an education to one individual because this student was thought to be too "weak minded" to profit from instruction. In 1919, in Antigo, Wisconsin, a student of normal intelligence but with a type of paralysis attended school through the fifth grade but was subsequently suspended because "his physical appearance nauseated teachers and other students, his disability required an undue amount of his teacher's time, and he had a negative impact on the discipline and progress of the school" (Osborne, 1996, p. 4). In both instances, state supreme courts upheld the decisions of the school boards. Today, these actions would be seen as clear violations of the pupils' rights and a flagrant disregard for the equal protection clause of the Fourteenth Amendment to the U.S. Constitution. Still, almost four decades passed before students with disabilities had a legal means for acquiring educational rights.

In the 1954 landmark school desegregation case, *Brown v. Board of Education of Topeka, Kansas* (347 U.S. 483), the U.S. Supreme Court reasoned that it was unlawful to discriminate against a group of individuals for arbitrary reasons. The Court specifically ruled that separate schools for black and white students were inherently unequal, contrary to the Fourteenth Amendment, and thus unconstitutional. Furthermore, education

was characterized as a fundamental function of government that should be afforded to all citizens on an equal basis. Though primarily recognized as striking down racial segregation, the thinking articulated in *Brown* had major implications for children with disabilities. Much of contemporary litigation and legislation affecting special education is legally, as well as morally, grounded in the precedents established by *Brown.*

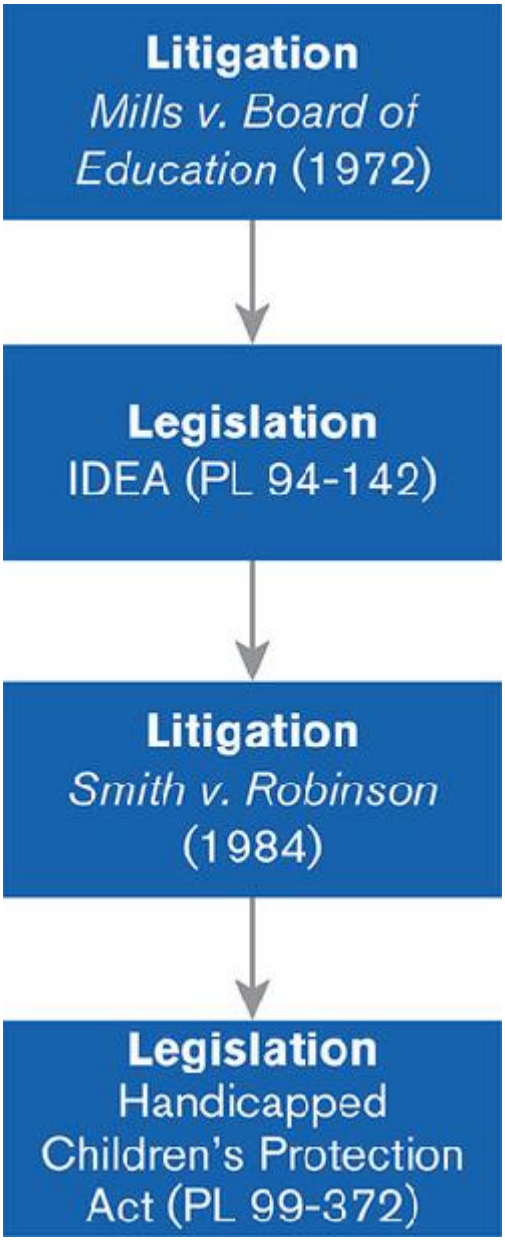
The movement to secure equal educational opportunity for children with disabilities was also aided by the U.S. civil rights movement of the 1960s. As Americans attempted to deal with issues of discrimination, inequality, and other social ills, advocates for individuals with disabilities also pushed for equal rights. Parental activism was ignited. Lawsuits were filed, and legislation was enacted primarily as a result of the untiring, vocal, collaborative efforts of parents and politically powerful advocacy groups. The success of these tactics was felt at the local, state, and eventually national level.

It is exceedingly difficult to say which came first, litigation or legislation. Both of these forces have played major roles in the development of state and federal policy concerning special education. They enjoy a unique and almost symbiotic relationship—one of mutual interdependence. Litigation frequently leads to legislation, which in turn spawns additional judicial action as the courts interpret and clarify the law, which often leads to further legislation (see Figure 2.1). Regardless of the progression, much of special education today has a legal foundation.

Key Judicial Decisions

Since the 1960s and early 1970s, a plethora of state and federal court decisions have helped shape and define a wide range of issues affecting contemporary special education policies and procedures. Although a thorough review of this litigation is beyond the scope of this chapter, Table 2.1 summarizes, in chronological order, some of the landmark cases affecting the field of special education. Several of the judicial remedies emanating from these lawsuits serve as cornerstones for both federal and state legislative enactments focusing on students with disabilities. Furthermore, many of today's accepted practices in special education, such as nondiscriminatory assessments and due process procedures, can trace their roots to various court decisions.

Figure 2.1 An Example of the Interrelationship Between Litigation and Legislation



Source: Adapted from M. Yell, *The Law and Special Education*, 5th ed. (New York, NY: Pearson Education, 2019), p. 11.

Table 2.1 A Synopsis of Selected Court Cases Influencing Special Education Practice

Table 2.1 A Synopsis of Selected Court Cases Influencing Special Education Practice

Case	Year	Issue	Judicial Decision
Brown v. Board of Education of Topeka, Kansas	1954	Educational segregation	Segregation of students by race ruled unconstitutional; children deprived of equal educational opportunity. Ended “separate but equal” schools for white and black pupils. Used as a precedent for arguing that children with disabilities cannot be excluded from a public education.
Diana v. State Board of Education	1970	Class placement	Linguistically different students must be tested in their primary language as well as English. Students cannot be placed in special education classes on the basis of IQ tests that are culturally biased. Verbal test items to be revised so as to reflect students’ cultural heritage. Group-administered IQ tests cannot be used to place children in programs for individuals with intellectual disability.

Case	Year	Issue	Judicial Decision
Pennsylvania Association for Retarded Children v. Commonwealth of Pennsylvania	1972	Right to education	State must guarantee a free public education to all children with intellectual disability ages 6–21 regardless of degree of impairment or associated disabilities. Students to be placed in the most integrated environment. Established the right of parents to participate in educational decisions affecting their children. State to engage in extensive efforts to locate and serve ("child-find") all students with intellectual disability. Preschool services to be provided to youngsters with intellectual disability if local school district serves preschoolers who do not have intellectual disability.
Mills v. Board of Education of the District of Columbia	1972	Right to education	Extended the Pennsylvania decision to include *all* children with disabilities. Established the constitutional right of children with

Case	Year	Issue	Judicial Decision
			exceptionalities to a public education, matched to their needs, including specialized instruction, regardless of their functional level. Presumed absence of fiscal resources is not a valid reason for failing to provide appropriate educational services to students with disabilities. Elaborate due process safeguards established to protect the rights of the child, including parental notification of pending initial evaluation, reassignment, or planned termination of special services.
Larry P. v. Riles	1972, 1979	Class placement	African American students could not be placed in classes for children with mild intellectual disability solely on the basis of intellectual assessments found to be culturally and racially biased. School officials directed to develop an assessment

Case	Year	Issue	Judicial Decision
			process that would not discriminate against minority children. Failure to comply with this order resulted in a 1979 ruling that completely prohibited the use of IQ tests for placing African American students in classes for children with mild intellectual disability. Ruling applies only to the state of California.
Lau v. Nichols	1974	Equal educational opportunity	A milestone case in the field of bilingual education. U.S. Supreme Court ruling noted that "there is not equality in treatment merely by providing students with the same facilities, textbooks, teachers, and curriculum; for students who do not understand English are effectively foreclosed from a meaningful education." Required schools to offer special language programs to English learners in order to confer

Case	Year	Issue	Judicial Decision
			equal educational opportunity.
Armstrong v. Kline	1979	Extended school year	State's refusal to pay for schooling in excess of 180 days for pupils with severe disabilities is a violation of their rights to an appropriate education. The court found that some children with disabilities will regress significantly during summer recess and have longer recoupment periods; thus, they are denied an appropriate education if not provided with a year-round education.
Tatro v. State of Texas	1980	Related services	U.S. Supreme Court held that catheterization qualified as a related service under PL 94–142. Catheterization was not considered an exempted medical procedure, as it could be performed by a health care aide or school nurse. Court further stipulated that only those services that allow a student to benefit from a

Case	Year	Issue	Judicial Decision
			special education qualify as related services.
Board of Education of the Hendrick Hudson Central School District v. Rowley	1982	Appropriate education	First U.S. Supreme Court interpretation of PL 94–142. Court addressed the issue of what constitutes an "appropriate" education for a student with a hearing impairment making satisfactory educational progress. Ruled that an appropriate education does not necessarily mean an education that will allow for the maximum possible achievement; rather, students must be given a reasonable opportunity to learn. Parents' request for a sign language interpreter, therefore, was denied. An appropriate education is not synonymous with an optimal educational experience.
Daniel R.R. v. State Board of Education	1989	Class placement	Fifth Circuit Court of Appeals held that a segregated class was an appropriate placement for

Case	Year	Issue	Judicial Decision
			a student with Down syndrome. Preference for integrated placement viewed as secondary to the need for an appropriate education. Established a two-prong test for determining compliance with the least restrictive environment mandate for students with severe disabilities. First, it must be determined if a pupil can make satisfactory progress and achieve educational benefit in the general education classroom through curriculum modification and the use of supplementary aids and services. Second, it must be determined whether the pupil has been integrated to the maximum extent appropriate. Successful compliance with both parts fulfills a school's obligation under federal law. Ruling affects least restrictive environment cases in Louisiana, Texas,

Case	Year	Issue	Judicial Decision
			and Mississippi, but has become a benchmark decision for other jurisdictions as well.
Oberti v. Board of Education of the Borough of Clementon School District	1992	Least restrictive environment	Placement in a general education classroom with supplementary aids and services must be offered to a student with disabilities prior to considering more segregated placements. Pupil cannot be excluded from a general education classroom solely because curriculum, services, or other practices would require modification. Excluding a learner from the general education classroom necessitates justification and documentation. Clear judicial preference for educational integration established.
Agostini v. Felton	1997	Provision of services	U.S. Supreme Court reversed a long-standing ruling banning the delivery of publicly funded educational

Case	Year	Issue	Judicial Decision
			services to students enrolled in private schools. Interpreted to mean that special educators can now provide services to children in parochial schools.
Cedar Rapids Community School District v. Garret F.	1999	Related services	U.S. Supreme Court expanded and clarified the concept of related services. Affirmed that intensive and continuous school health care services necessary for a student to attend school, if not performed by a physician, qualify as related services.
Schaffer v. Weast	2005	Burden of proof	A U.S. Supreme Court ruling addressing the issue of whether the parent(s) or school district bears the burden of proof in a due process hearing. Determined whether the parent(s), acting on behalf of their child, must prove that their child's individualized education program (IEP) is

Case	Year	Issue	Judicial Decision
			inappropriate or whether the school district must prove that the IEP is appropriate. Court ruled that the burden of proof is placed upon the party seeking relief.
Arlington Central School District Board of Education v. Murphy	2006	Recovery of fees	U.S. Supreme Court addressed whether or not parents are able to recover the professional fees of an educational consultant (lay advocate) who provided services during legal proceedings. Court ruled that parents are not entitled to reimbursement for the cost of experts because only attorney's fees are addressed in IDEA.
Winkelman v. Parma City School District	2007	Parental rights	The Supreme Court, by unanimous vote, affirmed the rights of parents to represent their children in IDEA-related court cases. Seen as an expansion of parental involvement and the definition of a free appropriate public education. Interpreted to

Case	Year	Issue	Judicial Decision
			mean that IDEA conveys enforceable rights to parents as well as their children.
Forest Grove School District v. T.A.	2009	Tuition reimbursement	Parents sought tuition reimbursement from the school district after removing their child who had learning disabilities, attention deficit hyperactivity disorder, and depression. The child was never declared eligible for a special education and never received services. Parents unilaterally enrolled the child in a private school. The Supreme Court found that IDEA authorizes reimbursement for private special education services when a public school fails to provide a free appropriate education and the private school placement is appropriate, regardless of whether the student previously received special education services from the public school.

Case	Year	Issue	Judicial Decision
Fry v. Napoleon Community Schools	2017	IDEA exhaustion doctrine	A suit filed on behalf of a young girl with a severe form of cerebral palsy who used a service animal. Because the school provided the student with a personal aide in accordance with her individualized education program, the school district refused to allow her the use of her service dog. The girl's parents sought relief under the Americans with Disabilities Act Amendments (ADAA) and Section 504 of the Rehabilitation Act rather than the Individuals with Disabilities Education Improvement Act (IDEA), which required the parents to exhaust all administrative remedies (e.g., due process hearing) prior to suing under the ADAA and 504. As this was a disability discrimination issue and the adequacy of the student's educational

Case	Year	Issue	Judicial Decision
			services were not in question, the Supreme Court, in a unanimous decision, found that because the parents were not seeking relief under the free appropriate public education clause of IDEA, the exhaustion requirement of IDEA was not applicable.
Endrew F. v. Douglas County School District	2017	Educational benefit	A far-reaching Supreme Court decision involving an 8-year-old boy with autism spectrum disorder. The child's parents removed him from public school and enrolled him in a private school due to an individualized education program (IEP) that they believed did not provide sufficient academic and social progress. The school district refused the parents' request for tuition reimbursement. Although the lower courts agreed with the school district, the parents appealed to the Supreme Court. The

Individuals With Disabilities Education Act: 1975–1997

Federal legislative intervention in the lives of persons with disabilities is of relatively recent origin. Before the late 1950s and early 1960s, little federal attention was paid to citizens with special needs. When legislation was enacted, it primarily assisted specific groups of individuals, such as those who were deaf or people with intellectual disability. The past forty years or so, however, have witnessed a flurry of legislative activity that has aided the growth of special education and provided educational benefits and other opportunities and rights to children and adults with disabilities.

Given the multitude of public laws[1] affecting special education, we will focus our attention only on landmark legislation. Our initial review will examine PL 94–142, the Education for All Handicapped Children Act, or, as it came to be known, the Individuals with Disabilities Education Act (IDEA). This change in legislative titles resulted from the enactment on October 30, 1990, of PL 101–476, which will be addressed later in this chapter.

1 National legislation, or public law (PL), is codified according to a standardized format. Legislation is thus designated by the number of the session of Congress that enacted the law followed by the number of the particular bill. PL 94–142, for example, was enacted by the 94th session of Congress and was the 142nd piece of legislation passed.

Public Law 94–142

IDEA is viewed as a “Bill of Rights” for children with exceptionalities and their families; it is the culmination of many years of dedicated effort by both parents and professionals. Like many other special educators, we consider this law to be one of the most important pieces, if not the most important piece, of federal legislation ever enacted on behalf of children

with special needs. PL 94–142 may rightfully be thought of as the legislative heart of special education.

The purpose of this bill, which was signed into law by President Gerald Ford on November 29, 1975, is

> to assure that all handicapped children have available to them . . . a free appropriate public education which emphasizes special education and related services designed to meet their unique needs, to assure that the rights of handicapped children and their parents or guardians are protected, to assist States and localities to provide for the education of all handicapped children, and to assess and assure the effectiveness of efforts to educate handicapped children. [Section 601(c)]

In pursuing these four purposes, this legislation incorporates six major components and guarantees that have forever changed the landscape of education across the United States. Despite legislative and court challenges over the past four decades, the following principles have endured to the present day:

- **A free appropriate public education (FAPE).** All children, regardless of the severity of their disability (a "zero reject" philosophy), must be provided with an education appropriate to their unique needs at no cost to the parent(s)/guardian(s). Included in this principle is the concept of related services, which requires that children receive, for example, occupational therapy as well as other services as necessary in order to benefit from special education.
- **The least restrictive environment (LRE).** Children with disabilities are to be educated, to the maximum extent appropriate, with students without disabilities. Placements must be consistent with the pupil's educational needs.
- **An individualized education program (IEP).** This document, developed in conjunction with the parent(s)/guardian(s), is an individually tailored statement describing an educational plan for each

learner with exceptionalities. The IEP, which will be fully discussed later in this chapter, is required to address (1) the present levels of academic achievement and functional performance (commonly referred to by school personnel as present levels of performance or PLOP); (2) annual goals and accompanying instructional objectives; (3) educational services to be provided; (4) the degree to which the pupil will be able to participate in general education programs; (5) plans for initiating services and length of service delivery; and (6) an annual evaluation procedure specifying objective criteria to determine if instructional objectives are being met. Many teachers and school administrators refer to this as progress monitoring.

- **Procedural due process.** The act affords parent(s)/guardian(s) several safeguards as it pertains to their child's education. Briefly, parent(s)/guardian(s) have the right to confidentiality of records; to examine all records; to obtain an independent evaluation; to receive written notification (in parents' native language) of proposed changes to their child's educational classification or placement; and to an impartial hearing whenever disagreements arise regarding educational plans for their son/daughter. Furthermore, the student's parent(s)/guardian(s) have the right to representation by legal counsel.
- **Nondiscriminatory assessment.** Prior to placement, a child must be evaluated by a multidisciplinary team in all areas of suspected disability by tests that are not racially, culturally, or linguistically biased. Students are to receive several types of assessments, administered by trained personnel; a single evaluation procedure is not permitted for either planning or placement purposes.
- **Parental participation.** PL 94–142 mandates meaningful parent involvement. Sometimes referred to as the "Parents' Law," this legislation requires that parents participate fully in the decision-making process that affects their child's education.

Congress indicated its desire by September 1, 1980, to provide a free appropriate public education for all eligible children ages 3 through 21. The law, however, did not require services be provided to preschool children with disabilities. Because many states were not providing preschool services to typical children, an education for young children with special

needs, in most instances, was not mandated. Although this legislation failed to require an education for younger children, it clearly focused attention on the preschool population and recognized the value of early education.

Legislation has greatly benefited individuals with disabilities and their families.

Pacific Press/LightRocket/Getty Images

Table 2.2 Highlights of IDEA Reauthorizations: 1986–1997

Table 2.2 Highlights of IDEA Reauthorizations: 1986–1997

Year	Public Law	Key Components
1986	PL 99–457	• Legislation viewed as a downward extension of PL 94–142 • Mandated services for preschoolers with disabilities, ages 3–5

Year	Public Law	Key Components
		• Permitted early intervention services for infants and toddlers, from birth through age 2, with developmental delays or disabilities • Individualized family service plan (IFSP) established for infants and toddlers • “Developmentally delayed” label created
1990	PL 101–476	• Name of legislation changed to Individuals with Disabilities Education Act (IDEA) • Autism and traumatic brain injury identified as discrete disability categories • Rehabilitation counseling and social work considered related services • Established the requirement of an individualized transition plan (ITP) by age 16 • States’ immunity from lawsuits for violating IDEA repealed
1997	PL 105–17	• Students with disabilities required to participate in state- and districtwide assessments • Transition planning commences at age 14 • Orientation and mobility included as a related service • Discretionary use of “developmentally delayed” label for pupils ages 3–9 • General educators required to participate on individualized education program (IEP) team • Students with disabilities are to be involved in and have access to general education

Year	Public Law	Key Components
		curriculum • Mediation offered as a means of resolving disputes • Benchmarks and measurable annual goals emphasized • Pupils who violate student code of conduct may be removed from their current educational placement only after a due process hearing • Assistive technology needs of each learner must be assessed • Students expelled or suspended from school are still entitled to receive services in accordance with their IEP • Greater variety of assessment tools and strategies are permissible for initial evaluations and reevaluations

Source: U.S. Department of Education.

PL 94–142 did contain some benefits for children under school age. It offered small financial grants (Preschool Incentive Grants) to the individual states as an incentive to serve young children with disabilities. It also carried a mandate for schools to identify and evaluate children from birth through age 21 suspected of evidencing a disability. Finally, PL 94–142 moved from a census count to a child count of the actual number of individuals with disabilities being served. The intent was to encourage the states to locate and serve children with disabilities.

In the 1980s and 1990s, Congress reauthorized the Individuals with Disabilities Education Act. As a result of this legislative activity, services for individuals with disabilities have been expanded, student and parental rights clarified, and discipline procedures articulated along with several

other key provisions. Table 2.2 presents a brief overview of some of these revisions to IDEA.

Many young children with developmental delays or disabilities have benefited from early intervention.

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Educational Reform: Standards-Based Education

Over the past two decades, there has been a growing movement toward greater educational accountability, with accompanying calls for educational reform or restructuring resulting in enhanced academic excellence. (See, for example, President Bill Clinton's Goals 2000: Educate America Act of 1994 [PL 103–227].) As a result of this trend, many states initiated challenging academic standards and more stringent graduation requirements for their students, while several professional organizations published performance indicators in various content areas, such as mathematics, language arts, and science. Likewise, many state departments of education are moving toward performance-based standards when establishing teacher licensure/certification requirements, thus linking student success with teacher qualifications. The overall focus of this movement, fueled by various political, social, and economic forces, was a concern over the learning outcomes of our students. It is equally concerned with establishing educational equity among all learners.

Educational standards, which are "general statements of what students should know or be able to do as a result of their public school education" (Nolet & McLaughlin, 2005, p. 5), are important for a couple of reasons. First, "they are intended," according to Nolet and McLaughlin (2005), "to create equity across schools and classrooms in that they define what all teachers should teach and . . . [they] also define the content that will be assessed and for which schools will be held accountable" (p. 5). Recent federal legislation embraces this thinking. The importance attached to standards-driven reform is clearly evident in the No Child Left Behind Act of 2001.

No Child Left Behind Act of 2001

In 2001, Congress reauthorized the Elementary and Secondary Education Act, popularly known as No Child Left Behind (PL 107–110). This legislation reflects President George W. Bush's commitment to educational reform and accountability. A brief synopsis of this ambitious law reveals that eventually all pupils, including those in special education, are expected to demonstrate proficiency in mathematics, reading, and science. Annual testing of children in Grades 3 through 8 is required, with students in Grades 10 through 12 assessed at least once. Schools were expected to show adequate yearly progress toward the goal of 100 percent proficiency by 2014. (A small percentage of students may be excused from participating in state- and districtwide achievement tests if their IEP provides for their exemption.) Because this law is concerned with the achievement of *all* students, test scores must be disaggregated according to the pupil's disability, socioeconomic status, race, ethnicity, and English language ability. The anticipated benefit of this requirement is that assessment results will directly translate into instructional accommodations, further aligning special education and general education into a unified delivery system responsible for serving all learners (Salend, 2016).

Schools that experience difficulty attaining the goal of adequate yearly progress will be provided with technical and financial assistance. If a school fails to demonstrate adequate yearly progress for three consecutive years, the local school district is required to offer supplemental instructional services such as tutoring, after-school classes, and summer programs (Council for Exceptional Children, 2003). Parents of children in "failing" schools will be given the opportunity to transfer their children to other schools, including private and parochial schools.

In addition to stressing student educational accomplishment, other aspects of this law require that the public as well as parents be informed of individual school performance and the qualifications of teachers. All elementary and secondary school teachers were expected to be "highly

qualified” by the end of the 2005–2006 school year according to state criteria. Rigorous standards are also being imposed on teacher aides.

What are the implications of this law for general as well as special educators? How competently will students with special needs perform in this age of educational reform and standards-based education? Obviously, PL 107–110 emphasizes academic achievement as measured by student performance on standardized tests. The expectation seems to be that effective instructional strategies can compensate for a student’s disability. The enactment of this law has ushered in an era of what is now commonly referred to as “high-stakes testing” or “high-stakes assessment.” Greater emphasis will most likely be placed on ensuring that pupils in special education are exposed to the general education curriculum. One can also anticipate that greater attention will be focused on aligning IEP goals with the content standards of the general education curriculum (Council for Exceptional Children, 2003). Finally, how colleges and universities prepare future teachers will also likely undergo significant change in an effort to ensure that graduates are highly qualified professionals.

The current focus on exposing individuals with special needs to the general education curriculum is clearly seen in an initiative known as the Common Core State Standards (CCSS) (Common Core State Standards Initiative, 2019a). Put forth by the National Governors Association and the Council of Chief State School Officers, the CCSS redefine the general education curriculum while outlining a set of grade-level expectations that describe what students should know in mathematics and English language arts in order to succeed in college and later careers. At the present time, forty-one states and the District of Columbia have adopted these standards (Common Core State Standards Initiative, 2019b).

These standards apply to all students, including pupils receiving a special education. The work of aligning IEP goals to the CCSS will certainly challenge many special educators. How does one adapt instruction to meet the unique learning needs of a child with a disability while also addressing rigorous content standards? Teachers of students with disabilities will need to carefully consider how the students’ disabilities impact their involvement

with and progress in the general education curriculum (Constable, Grossi, Moniz, & Ryan, 2013). The reforming of the general education curriculum with its emphasis on academic achievement for all learners is certainly praiseworthy, yet we believe that it cannot—nor should it—replace an effective special education program that provides specialized, individually tailored, and intensive services to children with special needs (Zigmond & Kloo, 2017).

See the accompanying First Person feature (page 51) for one educator's perspective on teaching in the current era of heightened accountability.

Individuals With Disabilities Education Improvement Act of 2004

On November 19, 2004, Congress passed legislation reauthorizing the Individuals with Disabilities Education Act. The new version of this law is called the Individuals with Disabilities Education Improvement Act of 2004, commonly referred to as IDEA 2004. President George W. Bush signed this bill (PL 108–446) into law on December 3, 2004. Many of the provisions of this legislation became effective on July 1, 2005; some elements of the law became effective, however, on the date the president signed the bill. It is safe to say that IDEA 2004 will significantly affect the professional lives of both general education teachers and special educators. Parents of children with disabilities will also encounter new roles and responsibilities as a result of this law.

> The Individuals with Disabilities Education Improvement Act of 2004 (IDEA) [has] increased the focus of special education from simply ensuring access to education to improving the educational performance of students with disabilities and aligning special education services with the larger national school improvement efforts that include standards, assessments, and accountability [i.e., greater conformity with the No Child Left Behind Act]. (Nolet & McLaughlin, 2005, pp. 2–3)

The Every Student Succeeds Act maintains a focus on accountability, high standards, and student achievement.

Tom Williams/CQ-Roll Call Group/Getty Images

Some of the significant issues addressed in this historic document are portrayed in Table 2.3.

Table 2.3 A Snapshot of IDEA 2004 Highlights

Table 2.3 A Snapshot of IDEA 2004 Highlights

• Modified criteria for identifying students with specific learning disabilities. Schools can now elect to use a process that determines whether the pupil responds to empirically validated, scientifically based interventions—commonly called response to intervention (RTI)
• Eliminates use of short-term objectives in individualized education programs (IEPs) except for students evaluated via alternate assessments that are aligned with alternate achievement standards
• IEPs must include a statement of the student's present level of academic achievement and functional performance; annual goals must be written in measurable terms

• Relaxes requirements for participation in IEP meetings
• Multiyear IEPs are permissible
• IEPs to incorporate research-based interventions
• Transition planning to begin with first IEP in effect once student reaches age 16
• Students with disabilities may be removed to an interim alternative educational setting for up to 45 school days for offenses involving weapons, drugs, or inflicting serious bodily injury
• All pupils are required to participate in all state- and districtwide assessments with accommodations or alternate assessments as stipulated in their IEP
• Special educators must be “highly qualified” according to individual state standards
• Resolution session required prior to a due process hearing
• Statute of limitations imposed on parents for filing due process complaints

- Modifies provision of student's native language and preferred mode of communication

Source: U.S. Department of Education.

Every Student Succeeds Act

One of the recent changes that will impact public education over the coming years occurred on December 10, 2015, when President Barack Obama signed the Every Student Succeeds Act (ESSA) (PL 114–95) into law. This legislation is the seventh reauthorization of the historic Elementary and Secondary Education Act (PL 89–10) initially passed in 1965 and, until now, known as the No Child Left Behind Act (PL 107–110). The aim of the ESSA was to preserve the spirit and intent of No Child Left Behind while remediating some of the perceived flaws and deficiencies voiced by legislators, educators, policy makers, school administrators, and parents. Although this new legislation retains an emphasis on accountability, high standards, and student achievement, the mechanisms for accomplishing these aims is substantially changed. Some of the provisions of this act include the following:

- ESSA still requires the annual testing of students in third through eighth grade in math and reading and once in high school in addition to a science test across elementary, middle, and high school; however, the adequate yearly progress provision has been repealed and replaced by a statewide accountability system.
- Allows states to adopt the Common Core State Standards but does not require their adoption.
- Eliminates “highly qualified” teacher status.
- Maintains the requirement that achievement data be disaggregated according to the student’s disability, socioeconomic status, race, ethnicity, and English language ability.
- Identifies low-performing schools as those whose assessment scores are in the bottom 5 percent, schools that have a high school graduation rate of less than 67 percent, or schools where subgroups of pupils consistently underperform. In these situations, state intervention is possible although specific remedies are not defined.
- For individuals with disabilities, the legislation ensures access to the general education curriculum, accommodations on assessments, and

> the use of universal design for learning principles, in addition to evidence-based interventions in schools where subgroups consistently underperform (Council for Exceptional Children, 2019).

The coming years will be ones of exciting opportunities and challenges as the entire educational community responds to the mandates of PL 108–446 and PL 114–95. These laws, like PL 94–142 more than forty years ago, will dramatically change the educational landscape for both general and special education.

Charter Schools and Students With Disabilities

We need to briefly mention an educational phenomenon that is growing in popularity in some communities across the United States—charter schools. According to the National Center for Special Education in Charter Schools (2019), “the charter school concept emerged from a deep commitment to quality and equity; schools of choice operating autonomously from traditional districts would serve as incubators of innovation” (para. 1). These schools are one example of school choice initiatives. In the 2017–2018 school year, charter schools numbered over 7,000 serving nearly 3.2 million students across 43 states and the District of Columbia (David & Hesla, 2018). Because charter schools are public schools, they are required to follow the mandates found in the IDEA legislation and Section 504 of the Rehabilitation Act of 1973, as well as the requirements of the Americans with Disabilities Act (see the following discussion on these laws). Despite their autonomy and the use, in some settings, of successful instructional models, charter schools have failed to benefit individuals with exceptional learning needs. Charter schools enroll fewer students with disabilities than typical public schools (Rhim, 2016), and it is believed by some that charter schools do not offer quality educational experiences to students with special needs, nor do they offer access to innovative educational experiences. The challenge confronting educators and other stakeholders is “to increase access and develop exemplary programs for students with disabilities” (National Center for Special Education in Charter Schools, 2019, para. 3). Hopefully, these efforts will be fruitful, and *all* students will benefit from creative thinking and powerful instructional programs.

Civil Rights Legislation

Section 504 of the Rehabilitation Act of 1973

The pieces of legislation that we just examined are representative special education laws (the exception being PL 107–110). PL 93–112, the Rehabilitation Act of 1973, however, is a *civil rights* law. Section 504 of this enactment was the first public law specifically aimed at protecting children and adults against discrimination due to a disability. It said that no individual can be excluded, solely because of his or her disability, from participating in or benefiting from any program or activity receiving federal financial assistance, which includes schools (Council for Exceptional Children, 1997).

Unlike IDEA, this act employs a functional rather than categorical model for determining a disability. According to this law, individuals are eligible for services if they

1. have a physical or mental impairment that substantially limits one or more major life activities;
2. have a record of such an impairment; or
3. are regarded as having such an impairment by others.

“Major life activities” are broadly defined and include, for example, walking, seeing, hearing, working, and learning.

To fulfill the requirements of Section 504, schools must make “reasonable accommodations” for pupils with disabilities so that they can participate in educational programs provided to other students. Reasonable accommodations might include modifications of the general education program, the assignment of an aide, a behavior management plan, or the provision of special study areas (Smith, 2002; Smith & Patton, 2007). Students may also receive related services such as occupational or physical therapy even if they are not receiving a special education through IDEA.

Because the protections afforded by this law are so broad, an individual who is ineligible for a special education under IDEA may qualify for

special assistance or accommodations under Section 504. A student with severe allergies, for example, would be eligible for services via Section 504 although it is unlikely that he or she would be eligible to receive services under IDEA. All students who are eligible for a special education and related services under IDEA are also eligible for accommodations under Section 504; the converse, however, is *not* true.

As with IDEA, there is a mandate contained within Section 504 to educate pupils with special needs with their typical peers to the maximum extent possible. In addition, schools are required to develop an accommodation plan (commonly called a "504 plan") customized to meet the unique needs of the individual. This document should include a statement of the pupil's strengths and needs, a list of necessary accommodations, and the individual(s) responsible for ensuring implementation. The purpose of this plan is to enable the student to receive a free appropriate public education (Gargiulo & Metcalf, 2017).

Finally, unlike IDEA, which offers protections for students only between the ages of 3 and 21, Section 504 covers the individual's life span. See Table 2.4 for a comparison of some of the key provisions of IDEA and Section 504.

Table 2.4 A Comparison of Key Features of IDEA and Section 504

Table 2.4 A Comparison of Key Features of IDEA and Section 504

Provision	IDEA	Section 504
Purpose	Provides a free appropriate public education to children and youth with specific disabilities.	Prohibits discrimination on the basis of a person's disability in all programs receiving federal funds.

Provision	IDEA	Section 504
Ages Covered	Individuals 3–21 years old.	No age restriction.
Definition of Disability	Twelve disabilities defined according to federal regulations plus state/local definition of *developmentally delayed*.	Broader interpretation of a disability than found in IDEA—a person with a physical or mental impairment that substantially limits a major life activity, who has a record of such impairment, or who is regarded as having such impairment.
Funding	States receive some federal dollars for excess cost of educating students with disabilities.	Because this is a civil rights law, no additional funding is provided.
Planning Documents	Individualized education program (IEP).	Accommodation plan (commonly referred to as a "504 plan").
Assessment Provisions	A comprehensive, nondiscriminatory eligibility evaluation in all areas of suspected disability conducted by a multidisciplinary team; reevaluations	Eligibility determination requires nondiscriminatory assessment procedures; requires reevaluation prior to a "significant change" in placement.

Provision	IDEA	Section 504
	every three years unless waived.	
Due Process	Extensive rights and protections afforded to student and parents.	Affords parents impartial hearing, right to inspect records, and representation by counsel. Additional protections at discretion of local school district.
Coordination	No provision.	School district required to identify a 504 coordinator.
Enforcement	U.S. Department of Education, Office of Special Education Programs.	Office for Civil Rights, U.S. Department of Education.

First Person: Lisa Teaching in the Age of Accountability

Having taught for almost ten years, I can safely say there is a definite need for accountability in education, but teaching in the twenty-first century presents some unique challenges. Everyone is accountable to someone for something. Teachers, for example, are accountable for teaching curriculum in preparation for high-stakes assessments, delivering data-driven instruction, using research-based strategies, and meeting the demands and deadlines imposed by administrators, while also communicating with parents. Students, on the other hand, are accountable for passing the high-stakes assessments and responding to the data-based instruction and research-based instructional strategies, while making adequate progress at increasingly higher levels of performance. Each year, it almost seems as though we have to surpass what was accomplished the previous year. The accompanying paperwork to prove this accountability doesn't get any less cumbersome either.

All this accountability comes from increasing concerns about the quality of our education. Yet, even with all this accountability, we see many students transfer with gaps in learning from not having been taught to the same high expectations. There are disparities from school system to school system that make it difficult to reach these ever increasing levels of accountability. This “achievement gap” affects what we have to work with, yet we are still accountable for getting these pupils to the academic level they need to be at. If there is one thing you can count on in teaching, it is that change is constant.

Teaching is a balancing act, and educators have to be sure that they do not get lost in the “accountability jungle” or forget that one of the reasons we teach is to help our students become discoverers of their own learning, not simply pass a high-stakes assessment. As educators, our accountability goal should be how well our students apply and generalize the knowledge and information that we share with them, not how well they can regurgitate facts in order to pass an isolated test that represents only a small sample of what they have learned.

The school days are getting longer, lunchtimes are getting shorter, and weekends are often spent in a quiet classroom in preparation for teaching in the coming week. It seems as though we are overly accountable to the point that we are losing valuable instructional time and focus. With all that said, accountability is important as long as we view it wisely.

General education teachers are now being required to prove that their students are being taught with research-based tools and that student performance is documented. No longer are student performance, methods of instruction, and teaching practices at the teacher’s discretion. This new level of accountability for general education teachers is going to require them to rely more and more on the expertise of special education teachers not only for the students who have individualized education programs but also for all struggling learners. At the same time, the special educator is also held accountable for ensuring compliance with regulations, timelines, and mounting paperwork with increasingly larger caseloads. It is a constant battle to find the proper balance—the demands of paperwork, the needs of individual students, and communication with families and general education teachers are all under the accountability microscope. This balance is more difficult to find with each new law, mandate, and policy. Although I feel it is a privilege to work as a teacher, and more particularly as a special education teacher, working as an inclusive teacher in the age of accountability becomes increasingly difficult each year.

—Lisa Cranford

Instructional Support Teacher Rocky Ridge Elementary, Hoover, Alabama

Public Law 101–336 (Americans With Disabilities Act)

Probably the most significant civil rights legislation affecting individuals with disabilities, the Americans with Disabilities Act (ADA) was signed into law on July 26, 1990, by President George H. W. Bush, who stated, “Today, America welcomes into the mainstream of life all people with disabilities. Let the shameful wall of exclusion finally come tumbling down.” This far-reaching enactment, which parallels Section 504 of PL 93–112, forbids discrimination against persons with disabilities in both the public and private sectors. Its purpose, according to Turnbull (1993), is to “provide clear, strong, consistent, and enforceable standards prohibiting discrimination against individuals with disabilities without respect for their age, nature or extent of disability” (p. 23).

The Americans with Disabilities Act requires that mass transit systems be accessible to citizens with disabilities.

Jeff Greenberg/Universal Images Group/Getty Images

The ADA goes far beyond traditional thinking of who is disabled and embraces, for instance, people with AIDS, individuals who have successfully completed a substance abuse program, and persons with cosmetic disfigurements. In fact, any person with an impairment that substantially limits a major life activity is covered by this legislation. It

extends protections and guarantees of civil rights in such diverse arenas as private sector employment, transportation, telecommunications, public and privately owned accommodations, and the services of local and state government.

Examples of the impact of this landmark legislation include the following:

- Employers of fifteen or more workers must make “reasonable accommodations” so that an otherwise qualified individual with a disability is not discriminated against. Accommodations might include a Braille computer keyboard for a worker who is visually impaired or wider doorways to allow easy access for an employee who uses a wheelchair. Furthermore, hiring, termination, and promotion practices may not discriminate against an applicant or employee who has a disability.
- Mass transit systems, such as buses, trains, and subways, must be accessible to citizens with disabilities.
- Hotels, fast-food restaurants, theaters, hospitals, early childhood centers, banks, dentists’ offices, retail stores, and the like may not discriminate against individuals with disabilities. These facilities must be accessible, or alternative means for providing services must be available.
- Companies that provide telephone service must offer relay services to individuals with hearing or speech impairments.

Think what this legislation means for the field of special education in general, and specifically for adolescents with disabilities as they prepare to leave high school and transition to the world of adulthood as independent citizens able to participate fully in all aspects of community life. Thanks to this enactment, the future for millions of Americans with disabilities is definitely brighter and more secure.

Public Law 110–325 (Americans With Disabilities Act Amendments of 2008)

On September 25, 2008, President George W. Bush signed into law the Americans with Disabilities Act Amendments. PL 110–325 became effective on January 1, 2009. Commonly called ADAA, this legislation revises the definition of a disability in favor of a broader interpretation, thereby extending protections to greater numbers of individuals. In fact, this law expressly overturned two Supreme Court decisions that had previously limited the meaning of the term *disability*. Additionally, ADAA expands the definition of "major life activities" by including two noninclusive lists, the first of which includes activities not expressly stipulated, such as reading, concentrating, and thinking. The second list includes major bodily functions —for example, functions of the immune system or neurological functioning (U.S. Equal Employment Opportunity Commission, n.d.). The act also states that the interpretation of "substantial limitation" must be made without regard to the ameliorative effects of mitigating measures like medication or medical equipment. (The only stated exception is eyeglasses or contact lenses.)

Changes incorporated in this legislation also apply to students eligible for protections under Section 504 of PL 93–112. According to Zirkel (2009), "the overall effect is obviously to expand the number and range of students eligible under Section 504" (p. 69). A pupil, however, cannot be "regarded as" having a disability if his or her disability is minor or transitory (a duration of six months or less). It is anticipated that the new ADAA eligibility standards will have a significant impact on special education. "IDEA eligibility teams will need to closely coordinate with Section 504 eligibility teams not only when determining that a student is ineligible for initial services under IDEA but also upon exiting the student from an IEP" (Zirkel, 2009, p. 71).

We see the overall intent of this enactment as ensuring that individuals with disabilities receive the protections and services to which they are legally

entitled.

Identification and Assessment of Individual Differences

One of the distinguishing characteristics of our field is the individuality and uniqueness of the students we serve. There is considerable wisdom in the maxim “No two children are alike.” Experienced educators will quickly tell you that even though students may share a common disability label, such as *learning disabled* or *visually impaired*, that is where the similarity ends. These pupils are likely to be as different as day and night. Of course, the individuality of our students, both typical and atypical, has the potential for creating significant instructional and/or management concerns for the classroom teacher. Recall from Chapter 1 the types of youngsters enrolled in Mr. Thompson’s fifth-grade classroom. Today’s schools are serving an increasingly diverse student population. At the same time, there is greater cooperation and more shared responsibility between general and special educators as they collectively plan appropriate educational experiences for all learners.

When teachers talk about the individuality of their students, they often refer to **interindividual differences**. These differences are what distinguish each student from his or her classmates. Interindividual differences are differences *between* pupils. Examples might include distinctions based on height, reading ability, athletic prowess, or intellectual competency. Some interindividual differences are more obvious and of greater educational significance than others.

interindividual differences Differences between two or more persons in a particular area.

Interindividual differences are frequently the reason for entry into special education programs. One child might be significantly above (or below) average in intellectual ability; another might exhibit a significant degree of hearing loss. Categorization and placement decision making by school personnel revolve around interindividual differences. Stated another way, school authorities identify, label, and subsequently place a student in an

instructional program on the basis of the student's interindividual differences.

However, not all pupils in a given program are alike. Children also exhibit **intraindividual differences**—a unique pattern of strengths and needs. Intraindividual differences are differences *within* the child. Instead of looking at how students compare with their peers, teachers focus on the individual's abilities and limitations. We should point out that this is a characteristic of all pupils, not just those enrolled in special education programs. For example, Victoria, who is the best artist in her eighth-grade class, is equally well known for her inability to sing. One of her classmates, Melinda, has a learning disability. Her reading ability is almost three years below grade level, yet she consistently earns very high grades in math.

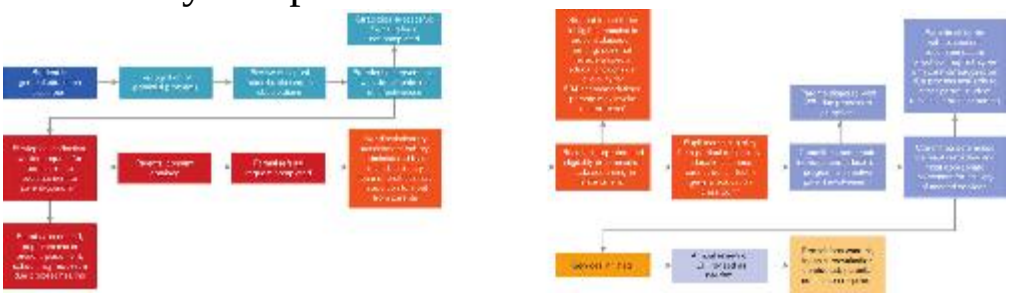
Intraindividual differences are obviously of importance to teachers. A student's IEP reflects this concern. Assessment data, derived from a variety of sources, typically profile a pupil's strengths and needs. This information is then used in crafting a customized instructional plan tailored to meet the unique needs of the learner.

intraindividual differences Differences within the individual; unique patterns of strengths and needs.

Referral and Assessment for Special Education

"Evaluation [assessment] is the gateway to special education but referral charts the course to the evaluation process" (Turnbull, Turnbull, Erwin, & Soodak, 2006, p. 232). Litigation, IDEA requirements, and today's best practices serve as our road map as we travel along the evaluation pathway to providing appropriate educational experiences for students with disabilities. This journey from referral to assessment to the development of an IEP and eventual placement in the most appropriate environment is a comprehensive process incorporating many different phases. Figure 2.2 illustrates this process. In the following sections, we examine several of the key elements involved in developing individualized program plans.

Figure 2.2 A Procedural Decision-Making Model for the Delivery of Special Education Services



1. IDEA does not mandate parental consent for referral but does require consent for evaluation.

2. Eligibility determination must occur within sixty days of referral.

3. If parents refuse consent for a special education, the school district is not responsible for providing a free appropriate public education.

4. The IEP must be developed within thirty days of eligibility determination.

* Mandatory resolution session required prior to a due process hearing.

Prereferral

Although evaluation may be the gateway to special education, a great deal of activity occurs prior to a student's ever taking the first test. Careful scrutiny of our model reveals an intervention strategy known as **prereferral intervention**, which occurs prior to initiating a referral for possible special education services. The purpose of this strategy is to reduce unwarranted referrals while providing individualized assistance to the student without the benefit of a special education. Although not mandated by IDEA, prereferral interventions have become increasingly common over the past two decades. In fact, IDEA 2004 permits the use of federal dollars to support these activities. Many states either require or recommend the use of this tactic with individuals suspected of having a disability.

> **prereferral intervention** Instructional or behavioral strategies introduced by a general educator to assist students experiencing difficulty; designed to minimize inappropriate referrals for special education.

Prereferral interventions are preemptive by design. They call for collaboration between general educators and other professionals for the express purpose of developing creative, alternative instructional and/or management strategies designed to accommodate the particular needs of the learner. This process results in shared responsibility and joint decision making among general and special educators, related service providers, administrators, and other school personnel, all of whom possess specific expertise; the pupil's parents typically do not participate in this early phase. The child's success or failure in school no longer depends exclusively on the pedagogical skills of the general educator; rather, it is now the responsibility of the school-based intervention assistance team (also commonly known as a teacher-assistance team, instructional support team, or child study team) (Buck, Polloway, Smith-Thomas, & Cook, 2003).

As beneficial as this strategy often is, it is not always successful. Detailed documentation of these intervention efforts provides a strong justification for the initiation of a formal referral.

Referral

A **referral** is the first step in a long journey toward receiving a special education. As we have just seen, a referral may start as a result of unsuccessful prereferral interventions, or it may be the outcome of **child-find** efforts (IDEA-mandated screening and identification of individuals suspected of needing special education).

> **referral** A formal request by a teacher or parent that a student be evaluated for special education services.
>
> **child-find** A function of each state, mandated by federal law, to locate and refer individuals who might require special education.

Simply stated, a referral is a written request to evaluate a student to determine whether the child has a disability. Typically, a referral begins with a general educator; it may also be initiated by a school administrator, a related services provider, a concerned parent, or another individual. Referrals typically arise from a concern about the child's academic achievement and/or social/behavioral problems. In some instances, a referral may be initiated because of a pupil's cultural or linguistic background; it may even be the result of problems caused by inappropriate teacher expectations or poor instructional strategies. Thus, the reasons for the referral may not always lie within the student. This is one reason why prereferral intervention strategies are so important. Not all referrals for special education services result in placement; many children are found to be ineligible for a variety of reasons.

Referral forms vary in their format. Generally, in addition to student demographic information, a referral must contain detailed reasons as to why the request is being made. Teachers must clearly describe the pupil's academic and/or social performance. Documentation typically accompanies the referral and may include test scores, checklists, behavioral observation data, and actual samples of the student's work. Teachers need to paint as

complete a picture as possible of their concern(s), as well as their efforts to rectify the situation.

In most schools, the information that has been gathered is then reviewed by a committee, often known as the child study committee, the special services team, or another such name. The composition of this group of professionals varies but typically includes an administrator, a school psychologist, and experienced teachers. Other personnel may also be involved, depending on the nature of the referral. It is the job of this committee to review the available information and decide whether further assessment is warranted. If the team decides to proceed, a written request for permission to evaluate is sent to the child's parent(s). School authorities *must* obtain permission from the parent/guardian before proceeding with a formal evaluation. Interestingly, IDEA does not require parental consent for referrals. We believe, however, that it is wise to notify parents that a referral is being initiated, explain the reasons for the referral, and solicit their input and cooperation in the referral process.

Assessments can be conducted at a young age and must be individualized and comprehensive.

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Assessment

The first step in determining whether a student has a disability, and is in need of a special education, is securing the consent of the child's parent(s)/guardian(s) for the evaluation. As noted previously, this step is mandated by IDEA as part of the procedural safeguards protecting the legal rights of parent(s)/guardian(s). Under the provisions of IDEA, school officials must notify the pupil's parent(s)/guardian(s), in their native language, of the school's intent to evaluate (or refusal to evaluate) the student and the rationale for this decision; they must explain the assessment process and alternatives available to the parent(s)/guardian(s), such as the right to an independent evaluation of their son or daughter. Many schools automatically send parent(s)/guardian(s) a statement of their legal rights when initial permission to evaluate is sought.

Assessment, according to Gargiulo and Metcalf (2017), is a generic term that refers to the process of gathering information about a pupil's strengths and needs. Educational assessment can rightly be thought of as an information-gathering and decision-making process.

> **assessment** The process of gathering information and identifying a student's strengths and needs through a variety of instruments and products; data used in making decisions.

One of the goals of the assessment process is to obtain a complete profile of the student's abilities and his or her needs. By law (IDEA), this requires the use of a **multidisciplinary team** of professionals, of which one member must be a teacher. In practice, some school districts are fulfilling this mission by establishing inter- and transdisciplinary assessment teams. Regardless of the model adopted by the school district, the team is responsible for developing an individualized and comprehensive assessment package that evaluates broad developmental domains (cognitive, academic achievement) as well as the specific areas of concern noted on the referral, such as social/emotional problems or suspected visual impairments.

multidisciplinary team A group of professionals from different disciplines who function as a team but perform their roles independent of one another.

Successful accomplishment of this task dictates the use of both formal and informal assessment tools. Once again, IDEA is very clear about this issue: No one procedure may be used as the sole basis of evaluation; a multitude of tests is required. IDEA regulations further require that the evaluations be presented in the pupil's native language or, when necessary, via other modes of communication such as sign language or Braille for students with a sensory impairment. Additionally, the selection and administration of the assessment battery must accurately reflect the child's aptitude and achievement and not penalize the student because of his or her impairment in sensory, manual, or speaking skills. The accompanying Insights feature (page 58) describes some accommodations that may be needed for accurate assessment.

School psychologists, educational diagnosticians, and other professionals responsible for evaluating the student have a wide variety of assessment instruments at their disposal. Evaluators attempt to gauge both inter- and intraindividual differences by using both norm- and criterion-referenced assessments. Simply stated, **norm-referenced assessments** are standardized tests and are linked to interindividual differences. Norm-referenced tests compare a pupil's performance with that of a representative sample of children, providing the evaluator with an indication of the pupil's performance relative to other individuals of similar chronological age. Data are typically presented in terms of percentile ranks, stanines, or grade-equivalent scores. Data gleaned from norm-referenced tests provide limited instructional information. In contrast, **criterion-referenced assessments** are associated with intraindividual differences and can provide data that are useful for instructional planning. In this type of assessment procedure, a student's performance on a task is compared to a particular level of mastery. The criterion level is typically established by the classroom teacher. Criterion-referenced assessments are especially helpful, according to Gargiulo and Metcalf (2017), in pinpointing the specific skills that the pupil has mastered as well as determining what skills necessitate additional

instruction. Teachers are concerned with the individual's pattern of strengths and needs rather than how the student compares with his or her classmates.

norm-referenced assessments Refers to standardized tests on which a pupil's performance is compared to that of his or her peers.

criterion-referenced assessment An assessment procedure in which a student's performance is compared to a particular level of mastery.

As mentioned earlier, evaluators must put together a complete educational portrait of the student's abilities. This frequently requires multiple sources of information, which typically include standardized tests, work samples, and observational data, among other forms of input. Table 2.5 summarizes some of the types of assessments increasingly being used by evaluation specialists to complement data derived from norm-referenced tests.

Table 2.5 Emerging Sources of Assessment Information

Table 2.5 Emerging Sources of Assessment Information

Source	Description
Naturalistic Observation	Documentation of qualitative as well as quantitative aspects of a youngster's behavior in the natural environment. Information may be recorded formally (rating scales, observational recording systems) or informally (anecdotal records, audio recordings). Data can be used to support or refute information gathered from other sources.
Interviews	Information obtained from significant individuals in a student's life—parents, teachers, older siblings, or the pupil him- or herself. Interviews are a planned and purposeful activity whose purpose is to gain insight or perspective on specific areas of interest, such as the

Source	Description
	child's background or possible reasons for behavioral problems. Format may be formal (interviewer follows a predetermined set of questions) or informal (interview proceeds according to the individual's responses). Data may be gathered orally or in writing.
Work Samples	Evidence of a pupil's actual classroom performance, typically focused on particular skill development. Sometimes referred to as a permanent product. Spelling tests, arithmetic fact sheets, and handwriting samples are examples of this information source. Work samples are especially useful when planning instructional intervention and modification. Requires the teacher to think diagnostically and look, for example, at error patterns or clarity of directions.
Portfolios	A type of authentic assessment, portfolios are an outgrowth of the familiar work folder concept. They include a wide range of examples of a student's emerging abilities and accomplishments over time. Qualitative and quantitative indicators of performance might include writing samples, audio/video recordings, worksheets, drawings, photographs, or other forms of evidence. Useful for student self-assessment.

Instructional Programming and Appropriate Placement

When properly conducted, educational assessments lead to the development of meaningful IEPs and IFSPs. Measurable annual goals (and short-term objectives/benchmarks for pupils evaluated via alternate assessments) are crafted based on data gleaned from these evaluations. But first, the multidisciplinary team must determine whether the student is eligible to receive special education services according to specific state criteria. Eligibility standards differ from state to state, but most are framed around IDEA criteria.

If team members, working in concert with the child's parent(s), determine that the student fails to qualify for a special education, we suggest developing intervention strategies and recommendations for accommodations to address the referral concerns. We believe this is necessary because the pupil will remain in his or her present placement—the general education classroom. Additionally, the team may wish to consider the pupil for a 504 accommodation plan if the student is eligible for such services. Parent(s)/guardian(s) must be sent written notification summarizing the evaluation and stating why their son or daughter is ineligible to receive a special education. If, however, it is determined that the pupil is eligible for a special education, the multidisciplinary team is then confronted with two monumental tasks: constructing the IEP/IFSP and determining the most appropriate placement for the student.

Insights
Assessment Accommodations

In order to accurately portray a pupil's abilities and needs, assessment accommodations are sometimes necessary. Accommodations are changes in how students access and demonstrate learning without changing the standards they are working toward. Accommodations must be individualized; not all pupils require them, nor do students

with the same disability require the same type of accommodations. The need for accommodations may change over time; some individuals may require fewer accommodations in one situation while in other situations additional support is required. Listed as follows are examples of accommodations that individualized education program teams may find beneficial.

Presentation accommodations let students access assignments, tests, and activities in ways other than reading standard print. Students with print disabilities (inability to visually decode standard print because of a physical, sensory, or cognitive disability) may require a combination of these accommodations:

- Visual: large print, magnification devices, sign language, visual cues
- Tactile: Braille, Nemeth code, tactile graphics
- Auditory: human reader, tablets, audio amplification devices
- Visual and auditory: screen reader, video recording, descriptive video, talking materials

Response accommodations allow students to complete assignments, tests, and activities in different ways or solve or organize problems using an assistive device or organizer. Response accommodations include:

- Different ways to complete assignments, tests, and activities: expressing responses to a scribe through speech, sign language, pointing, or an assistive communication device; typing on or speaking to a word processor, Braille, or audio recorder; writing in a test booklet instead of on an answer sheet
- Materials or devices to solve or organize responses: calculation devices; spelling and grammar assistive devices; visual or graphic organizers

Timing and scheduling accommodations give students the time and breaks they need to complete assignments, tests, and activities and may change the time of day, day of the week, or number of days over which an activity takes place. These include:

- Extended time
- Multiple or frequent breaks
- Changing the testing schedule or order of subtests
- Dividing long-term assignments

Setting accommodations change the location in which a student receives instruction or the conditions of the setting. Students may be allowed to sit in a different location than the majority of students to:

- Reduce distractions
- Receive accommodations
- Increase physical access
- Use special equipment

Source: Adapted from S. Thompson, “Choosing and Using Accommodations on Assessments,” *CEC Today*, *10*(6), 2004, pp. 12, 18.

Designing Individualized Instructional Programs

According to IDEA, each student identified by a multidisciplinary child study team as having a disability and in need of special education must have an individualized program of specially designed instruction that addresses the unique needs of the child and, in the case of infants and toddlers, the needs of the family as well. IEPs and IFSPs are guides to the design and delivery of customized services and instruction. They also serve as vehicles for collaboration and cooperation between parents and professionals as they jointly devise appropriate educational experiences.

Individualized Education Program

An individualized education program is part of an overall strategy designed to deliver services appropriate to the individual needs of pupils ages 3 and older. By the time we reach the IEP stage, the appropriate permissions have been gathered, assessments have been conducted, and a disability determination has been made. We are now at the point where the IEP is to be developed, followed by placement in the most appropriate and least restrictive setting. Bateman and Linden (2012) make a very important point about *when* the IEP is to be developed. They believe that IEPs are often written at the wrong time. Legally, the IEP is to be developed within thirty days following the evaluation and determination of the child's disability, but *before* a placement recommendation is formulated. Placement in the least restrictive and most normalized setting is based on a completed IEP, not the other way around. An IEP should not be limited by placement options or the availability of services. We believe it is best to see the IEP as a management tool or planning vehicle that ensures that children with disabilities receive an individualized education appropriate to their unique needs. It also guides the integration of the general and special education curriculum (Diliberto & Brewer, 2012). This focus is in concert with both the intent and the spirit of IDEA.

For an in-depth example of an IEP, visit the SAGE edge student study site at edge.sagepub.com/gargiulo7e.

IEPs are written by a team. At a minimum, participation must include a parent/guardian; the child's teachers, including a general education teacher and a special educator; a representative from the school district; and an individual able to interpret the instructional implications of the evaluation. When appropriate, the student, as well as other professionals who possess pertinent information or whose expertise is desired, may participate at the discretion of the parent or school. Parents have a legal right to participate meaningfully in this planning and decision-making process; they serve as

the child's advocate. Although IDEA mandates a collaborative role for parents, it does not stipulate the degree or extent of their participation.

IEPs will vary greatly in their format and degree of specificity. Government regulations do not specify the level of detail considered appropriate, nor do they stipulate how the IEP is to be constructed—only that it be a written document. What is specified are the components (see the accompanying Insights feature on page 60).

As stated previously, an IEP is, in essence, a management tool that stipulates *who* will be involved in providing a special education, *what* services will be offered, *where* they will be delivered, and for *how long.* In addition, an IEP gauges *how successfully* goals have been met. Although the IEP does contain a measure of accountability, it is not a legally binding contract; schools are not liable if goals are not achieved. Schools are liable, however, if they do not provide the services stipulated in the IEP. IEPs are to be reviewed annually, although parents may request an earlier review. A complete reevaluation of the pupil's eligibility for special education must occur every three years. PL 108–446 waives this requirement, however, if both the parents and school officials agree that such a review is not necessary.

IEPs are not meant to be so detailed or complete that they serve as the entire instructional agenda, nor are they intended to dictate what the individual is taught. They do have to be individualized, however, and address the unique learning and/or behavioral requirements of the student. It is for this reason that we find fault with the growing reliance on computer-generated goals and objectives. Although computer-managed IEPs may serve as a useful logistical tool, like Bateman and Linden (2012), we have grave doubts as to the educational relevancy of this procedure and question its legality. We hope teachers will use this resource only as a starting point for designing customized and individually tailored plans.

Insights
Elements of a Meaningful Individualized Education Program

Current Performance. A statement of the student's present levels of educational and functional performance, including how the pupil's disability affects his or her involvement and progress in the general education curriculum, or, for preschoolers, how the disability affects participation in age-appropriate activities.
Goals. A statement of measurable annual goals (both functional and academic) that address the student's involvement and progress in the general education curriculum as well as the student's other education needs; short-term objectives or benchmarks are required for pupils who take alternate assessments aligned to alternate achievement standards.
Special Education and Related Services. A statement of special education, related services, and supplementary aids and services (based on peer-reviewed research) to be provided, including program modifications or supports necessary for the student to advance toward attainment of annual goals; to be involved and progress in the general education curriculum, extracurricular activities, and nonacademic activities; and to be educated and participate in activities with other children both with and without disabilities.
Participation With Typical Students. An explanation of the extent, if any, to which the student will *not* participate in the general education classroom.
Participation in State- and Districtwide Assessments. A statement of any individual modifications needed for the student to participate in a state- or districtwide assessment; if a student will not participate, a statement of why the assessment is inappropriate and how the pupil will be assessed.
Dates and Places. Projected date for initiation of services; expected location, duration, and frequency of such services.
Transition Services. Beginning at age 16, a statement of needed transition services identifying measurable postschool goals (training, education, employment, and, if appropriate, independent living skills), including a statement of interagency linkages and/or responsibilities.
Measuring Progress. A statement of how progress toward annual goals will be measured and how a student's parents (or guardians) will be regularly informed of such progress.
Age of Majority. Information provided at least one year before reaching the age of majority regarding transfer of rights to the student upon reaching the age of majority.

Parents play a crucial role in developing their child's individualized education program.

iStock.com/Steve Debenport

One of the challenges confronting the IEP team is ensuring that students have access to the general education curriculum as stipulated in both the 1997 and 2004 reauthorizations of IDEA. But what is the general education curriculum? In most instances, it is the curriculum that typical learners are exposed to, which is often established by individual state boards of education. The IEP must address how the pupil's disability affects his or her involvement in and ability to progress in the general education curriculum. The underlying assumption seems to be that even if a child is receiving a special education, he or she should engage the general education curriculum. Documentation is required if the team believes that this curriculum is inappropriate for a particular student.

IDEA 2004 requires the IEP team to develop measurable annual goals while also emphasizing exposure to the general education curriculum. Goal statements are purposely broad. Their intent is to provide long-range direction to a student's educational program, not to define exact instructional tasks. Based on the pupil's current level of performance, goals are "written to reflect what a student needs in order to become involved in and to make progress in the general education curriculum" (Yell, 2019, p. 235). They represent reasonable projections or estimates of what the pupil should be able to accomplish within the academic year. They also answer the question "What should the student be doing?" Annual goals can reflect academic functioning, social behavior, adaptive behavior, or life skills. Regardless of their emphasis, goal statements should be positive, student oriented, and relevant (Polloway, Patton, Serna, & Bailey, 2018).

Measurable annual goals should include the following five components:

- The student (the who)
- Will do what (the behavior)
- To what level or degree (the criterion)
- Under what conditions (the conditions)
- In what length of time (the time frame)

Quality IEPs largely depend on having well-written and appropriate goals (and objectives) that address the unique needs of the individual. IEPs are the primary means of ensuring that a specially designed educational program is provided. The accompanying Strategies for Effective Teaching and Learning feature provides a sample agenda for an IEP team meeting.

Strategies for Effective Teaching and Learning
Suggested Individualized Education Program Meeting Agenda

- Welcome and introduction of participants and their respective roles
- Statement of purpose
- Review of previous year's IEP (except for initial placement) and accomplishments
- Discussion of student's present level of performance and progress:
  - Assessment information
  - Strengths and emerging areas
- Consideration of specific needs:
  - Instructional modifications and accommodations
  - Participation in state- and districtwide assessments
  - Related services
  - Assistive technology needs
  - Transition goals
  - Behavior intervention plan
  - Language needs for student with limited English proficiency
  - Braille instruction for student who is visually impaired
- Development of annual goals (and benchmarks if appropriate)
- Recommendations and justification for placement in least restrictive environment
- Closing comments, securing of signatures
- Copies of IEP to all team members

Individualized Family Service Plan

The individualized family service plan is the driving force behind the delivery of early intervention services to infants and toddlers who are at risk or have a disability. The IFSP was originally conceived to focus on children younger than age 3, but recent changes in thinking now allow this document to be used with preschoolers who require a special education. This change was initiated by the federal government in an effort to minimize the differences between early intervention and preschool special education services; the government is now encouraging states to establish “seamless systems” designed to serve youngsters from birth through age 5. As a result of this policy decision, states now have the authority to use IFSPs for preschoolers with special needs until the children enter kindergarten (Lipkin & Schertz, 2008).

For an in-depth example of an IFSP, visit the SAGE edge student study site at edge.sagepub.com/gargiulo7e.

Like an IEP, an IFSP is developed by a team consisting of professionals and the child’s parents as key members. In addition, parents may invite other family members to participate, as well as an advocate. Typically, the service coordinator who has been working with the family, the professionals involved in the assessment of the youngster, and the service providers constitute the remainder of the group charged with the responsibility of writing the IFSP. The elements required for an IFSP, as stipulated in PL 108–446, are summarized in Table 2.6.

The IFSP was intentionally designed to preserve the family’s role as primary caregiver. Well-constructed IFSPs, which are reviewed every six months, fully support the family members and encourage their active and meaningful involvement. This thinking is in keeping with an empowerment model (Turnbull, Turnbull, Erwin, Soodak, & Shogren, 2015) that views families as capable (with occasional assistance) of helping themselves. It allows parents to retain their decision-making role, establish goals, and assess their own needs. It is also in keeping with our support of an

ecological perspective (Gargiulo & Kilgo, 2020), which argues that one cannot look at a child without considering the various systems and spheres of influence that provide support—in this instance, the infant or toddler's family and community.

Table 2.6 Comparable Components of an IEP and IFSP

Table 2.6 Comparable Components of an IEP and IFSP

Individualized Education Program	Individualized Family Service Plan
A statement of the child's present levels of academic achievement and functional performance, including involvement and progress in the general education curriculum	A statement of the infant or toddler's present levels of physical, cognitive, communication, social/emotional, and adaptive development
No comparable feature	A statement of the family's resources, priorities, and concerns
A statement of measurable annual goals, including benchmarks or short-term instructional objectives for children who take alternate assessments aligned to alternate achievement standards	A statement of measurable results or outcomes expected to be achieved for the infant or toddler and the family
A statement indicating progress toward annual goals and a mechanism for regularly informing parents/guardians of such progress	Criteria, procedures, and timelines used to determine the degree to which progress toward achieving the outcomes or results is being made

Individualized Education Program	Individualized Family Service Plan
A statement of specific special education and related services and supplementary aids and services, based on peer-reviewed research, to be provided and any program modifications	A statement of specific early intervention services, based on peer-reviewed research, necessary to meet the unique needs of the infant or toddler and the family
An explanation of the extent to which the child will not participate in general education programs	A statement of the natural environments in which early intervention services will appropriately be provided, or justification, if not provided
Modifications needed to participate in state- or districtwide assessments	No comparable feature
The projected date for initiation of services and the anticipated duration, frequency, and location of services	The projected date for initiation of services and the anticipated duration of services
No comparable feature	The name of the service coordinator
At age 16, a statement of transition services needed, including courses of study in addition to measurable postsecondary goals	The steps to be taken to support the child's transition to other services at age 3

Source: Adapted from Individuals with Disabilities Education Improvement Act of 2004, Title 20 U.S. Code (U.S.C.) 1400 *et seq*, Part B Section 614 (d) (1) (A), and Part C Section 636 (d).

Information obtained from the assessment of the family and data about the infant or toddler's developmental status are used to generate outcome statements or goals for the child and his or her family. Practitioners are increasingly emphasizing real-life or authentic goals for children with special needs (Johnson, Rahan, & Bricker, 2015). These goals, which are based on the priorities and concerns of the family, are reflected in the IFSP's required outcome statements. Interventionists no longer teach skills in isolation; rather, goals are developed that are relevant to the daily activities of the youngsters and their families. These statements need to be practical and functional, reflecting real-life situations occurring in the natural environment.

Service Delivery Options: Where a Special Education Is Provided

Now that the IEP/IFSP team has decided *what* will be taught, it must decide *where* special education services will be provided. The issue of appropriate placement of children with disabilities has generated considerable controversy and debate. In fact, it has been a point of contention among special educators for almost forty years. IDEA mandates that services be provided to students in the least restrictive setting—or, as Henry and Flynt (1990) called it, the most productive environment. The question confronting the team is "What is the most appropriate placement for achieving the goals (outcomes) of the IEP (IFSP)?" The chosen setting must allow the pupil to reach his or her IEP (or IFSP) goals and work toward his or her potential.

It is at this point in our decision-making model that school authorities, in collaboration with the child's parent(s)/guardian(s), attempt to reach agreement about where the student will be served. The principle guiding this decision is known as the **least restrictive environment (LRE)**. This is a relative concept; it must be determined individually for each pupil. We interpret this principle to mean that students with disabilities should be educated in a setting that most closely approximates the general education classroom *and* still meets the unique needs of the individual. As we will see shortly, for a growing number of students, this setting is the general education classroom. The concept of LRE calls for maximum opportunity for meaningful involvement and participation with classmates who are not disabled. One of its inherent difficulties is the required balancing of maximum integration with the delivery of an appropriate education.

least restrictive environment (LRE) A relative concept individually determined for each student; principle that each pupil should be educated, to the maximum extent appropriate, with classmates who are typical.

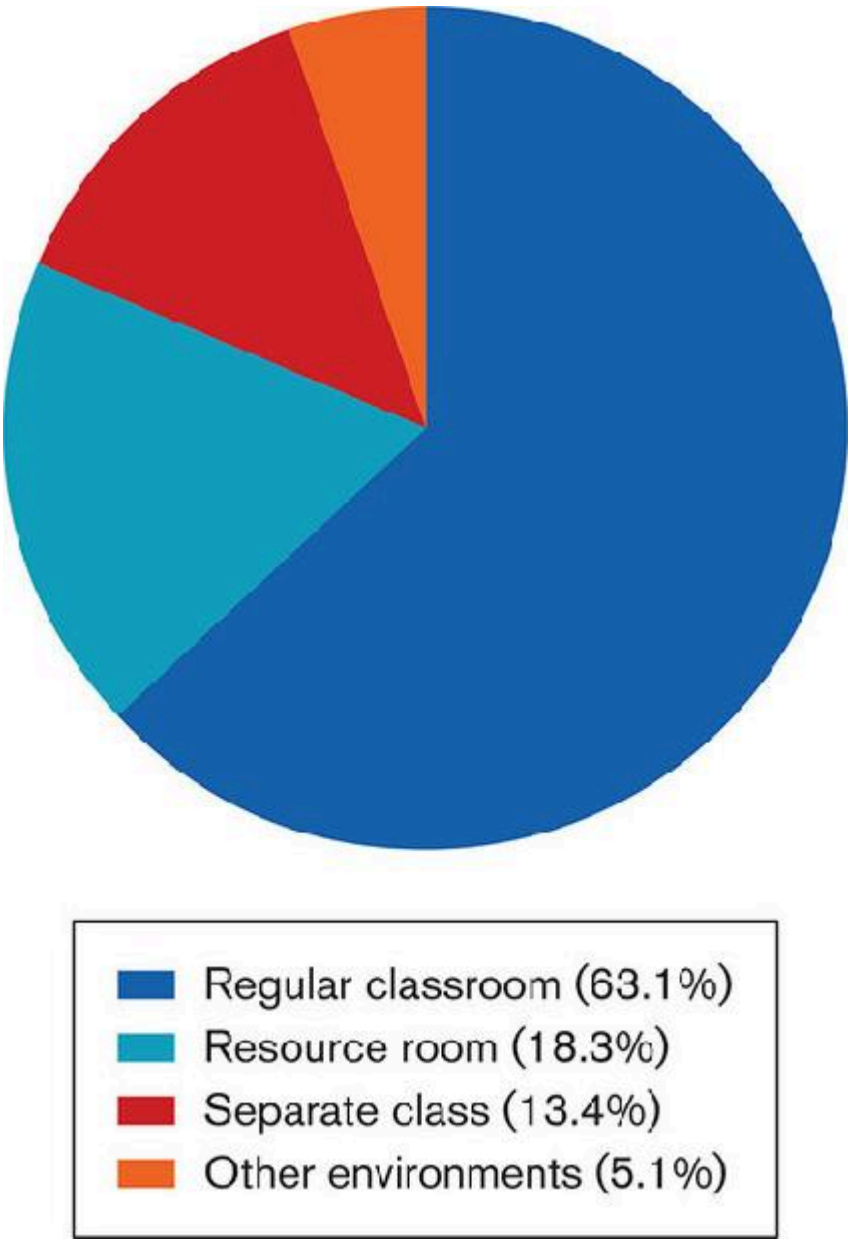
Educational Placements

The federal government annually monitors the different settings in which pupils with disabilities receive a special education. Figure 2.3 illustrates the percentage of students in the various educational environments recognized by the U.S. Department of Education. Table 2.7 describes six typical school settings serving individuals with special needs. We will report placement information in future chapters according to these environments.

A Cascade of Service Delivery Options

As we have just seen, the federal government recognizes that no one educational setting is appropriate for meeting the needs of all children with disabilities. Effective delivery of a special education requires an array or continuum of placement possibilities customized to the individual requirements of each pupil. The concept of a continuum of educational services has been part of the fabric of American special education for over four decades. Reynolds originally described the concept of a range of placement options in 1962. His thinking was later elaborated on and expanded by Deno (1970), who constructed a model offering a “cascade” or continuum of settings. A traditional view of service delivery options is portrayed in Figure 2.4.

Figure 2.3 Percentage of School-Age Children With Disabilities Served in Various Educational Settings



Note: Data are for students ages 6–21 enrolled in special education during the 2016–2017 school year.

Other environments include separate schools, residential facilities, homebound/hospital environments, correctional facilities, and parentally placed in private schools.

Information based on data from forty-nine states, the District of Columbia, Puerto Rico, Bureau of Indian Education schools, and outlying areas. Data for Wisconsin not included.

Source: U.S. Department of Education. (2018). *Fortieth annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2018* (Washington, DC: U.S. Government Printing Office), p. 52.

Table 2.7 Definitions of Typical Educational Settings Serving School-Age Students With Disabilities

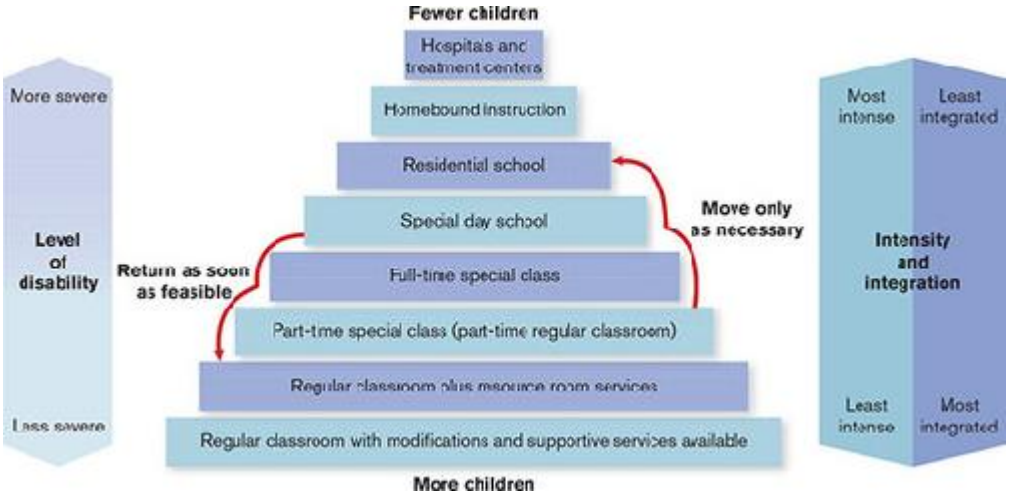
Table 2.7 Definitions of Typical Educational Settings Serving School-Age Students With Disabilities

Setting	Definition
Regular Classroom	Students who spend at least 80 percent of the school day in a regular or general education classroom.
Resource Room	Students who receive special education and related services in the regular classroom between 40 and 79 percent of the school day. Students are “pulled out” of the regular classroom and receive specialized instruction or services in a separate classroom for limited periods of time. Services may be individualized or offered in small groups.
Separate Class	Students who receive special education and related services in the regular classroom for less than 40 percent of the school day. Commonly known as a self-contained classroom wherein pupils, usually those with

Setting	Definition
	more severe disabilities, receive full-time instruction or, in a modified version, participate in nonacademic aspects of school activities. Classroom is located in typical school building.
Separate School	Students who receive special education and related services in a public or private separate day school for students with disabilities, at public expense, for more than 50 percent of the school day.
Residential Facility	Students who receive a special education in a public or private residential facility, at public expense, twenty-four hours a day.
Homebound/Hospital	Students placed in and receiving a special education in a hospital or homebound program.

Source: Adapted from U.S. Department of Education. (2000). *Twenty-second annual report to Congress on the implementation of the Individuals with Disabilities Education Act* (Washington, DC: U.S. Government Printing Office), pp. II–14.

Figure 2.4 A Traditional View of Service Delivery Options



Source: Adapted from S. Graves, R. Gargiulo, and L. Sluder, *Young Children: An Introduction to Early Childhood Education* (St. Paul, MN: West, 1996), p. 398.

In this model, the general education classroom is viewed as the most normalized or typical setting; consequently, the greatest number of students are served in this environment. This placement would be considered the least restrictive option. Deviation from the general education classroom should occur only when it is educationally necessary for the pupil to receive an appropriate education. Each higher level depicted in Figure 2.4 represents a progressively more restrictive setting. Movement up the hierarchy generally leads to the delivery of more intensive services to children with more severe disabilities, who are fewer in number. However, intensive supports are now being provided in general education classrooms with increasing frequency. Environments at the upper levels are considered to be the most restrictive and least normalized, yet, as we will see shortly, they may be the most appropriate placement for a particular individual.

As originally conceived, the natural flow of this cascade of service delivery options would be in a downward movement from more restrictive settings to those viewed as least restrictive, such as the general education classroom with or without support services. Contemporary thinking, however, suggests that pupils begin in the general education classroom and ascend the model, reaching a level that meets their unique needs. A key feature of

this model, too often overlooked, is that a particular placement is only temporary; flexibility or freedom of movement is what makes this model work. The settings must be envisioned as fluid rather than rigid. As the needs of the pupil change, so should the environment; this is why there is an array of service delivery possibilities. In our opinion, there is no one best educational placement for each and every student with disabilities.

A Contemporary Challenge

At the present time, the field of special education is confronting the challenge of calls for greater inclusion of individuals with disabilities into all aspects of society, especially educational programs. Simply stated, some advocates for people with disabilities (and some parents as well) dismiss the long-standing concept of a continuum of service delivery possibilities and argue that *all* pupils with disabilities, regardless of the type or severity of their impairment, should be educated in general education classrooms at neighborhood schools. They argue further that students should be served on the basis of their chronological age rather than academic ability or mental age. This is truly an explosive proposal. The debate surrounding this issue is an emotionally charged one with great potential for polarizing the field of special education, as other professionals, advocates, and parents argue fervently against this thinking. According to Gargiulo and Kilgo (2020), supporters of this movement see it as the next great revolution in special education, whereas opponents consider it the start of a return to the "dark ages" of special education—the era before PL 94–142. We suspect that the truth lies somewhere between these two extremes.

The intensity of this debate is fueled by several factors, one of which is the inconsistent use of terminology. As frequently happens in arguments, people are often saying the same thing but using different words. Therefore, we offer the following interpretations of key terms frequently encountered in describing this movement.

> Federal law stipulates that, to the maximum extent appropriate, pupils with disabilities are to be educated with their typical classmates.

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Mainstreaming

The first potentially confusing term is **mainstreaming**, which first appeared on the educational scene more than forty years ago. It evolved from an argument put forth by Dunn (1968), who, in a classic essay, questioned the pedagogical wisdom of serving children with mild intellectual disability in self-contained classrooms, which was then common practice. Other professionals soon joined with Dunn in his call for a more integrated service delivery model, resulting in the beginning of a movement away from isolated special classes as the placement of choice.

> **mainstreaming** An early term for the practice of integrating students with special needs into a general education classroom for all or part of the school day.

We define mainstreaming—or, in contemporary language, integration—as the social and instructional integration of students with disabilities into educational programs whose primary purpose is to serve typically developing individuals. It represents a common interpretation of the principle of educating children with disabilities in the least restrictive environment. Interestingly, the term *mainstreaming* itself never appears in any piece of federal legislation.

Parents no longer have to prove that their son or daughter should be mainstreamed; rather, schools must justify their position to exclude. They

must prove that they have made a good-faith effort at integration or present strong evidence that an inclusionary setting is unsatisfactory (Yell, 2019). PL 108–446 currently supports this thinking.

Mainstreaming must provide the student with an appropriate education based on the unique needs of the child. It is our opinion that policy makers never envisioned that mainstreaming would be interpreted to mean that *all* children with special needs must be placed in integrated placements; to do so would mean abandoning the idea of determining the most appropriate placement for a particular child. IDEA clearly stipulates that, to the maximum extent appropriate, children with disabilities are to be educated with their typical peers. We interpret this provision to mean that, for some individuals, an integrated setting, even with supplementary aids and services, might be an inappropriate placement in light of the child's unique characteristics. A least restrictive environment does not automatically mean placement with typical learners. As educators, we need to make the distinction between appropriateness and restrictiveness.

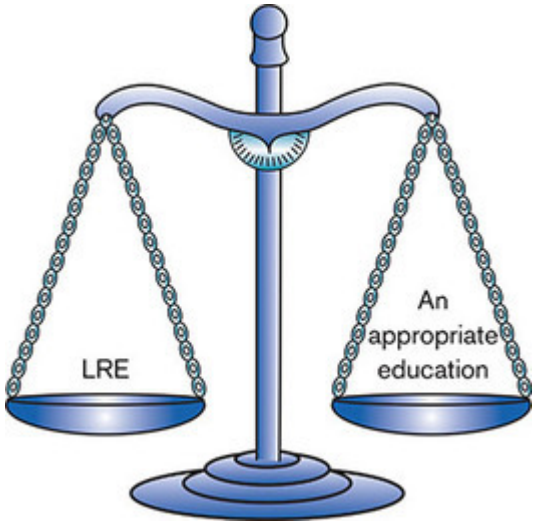
Least Restrictive Environment

Least restrictive environment (LRE) is a legal term often interpreted to say individuals with disabilities are to be educated in environments as close as possible to the general education classroom setting. An LRE is not a place but a concept.

Determination of the LRE is made individually for each child. An appropriate placement for one student could quite easily be inappropriate for another. The LRE is based on the pupil's educational needs, not on his or her disability. It applies equally to children of school age and to preschoolers. Even infants and toddlers with disabilities are required by law (PL 102–119) to have services delivered in normalized settings.

Inherent within the mandate of providing a special education and/or related services within the LRE is the notion of a continuum of service delivery possibilities. Figure 2.4 (page 65) reflects varying degrees of restrictiveness, or amount of available contact with typical learners. Being

only with children with disabilities is considered restrictive; placement with peers without disabilities is viewed as least restrictive. As we ascend the continuum, the environments provide fewer and fewer opportunities for interaction with typically developing age-mates—hence the perception of greater restrictiveness. Despite a strong preference for association with students who are typical, this desire must be balanced by the requirement of providing an education appropriate to the unique needs of the individual. Consequently, an integrative environment may not always be the most appropriate placement option. Each situation must be individually assessed and decided on a case-by-case basis. The educational setting must meet the needs of the learner. The philosophy of the LRE guides rather than prescribes decision making (Meyen, 1995).



We recognize, as do many other special educators, that maximum integration with typically developing children is highly desirable and should be one of our major goals. The question is when, where, with whom, and to what extent individuals with disabilities are to be integrated.

Regular Education Initiative

The third concept that requires our attention is the **regular education initiative**, or, as it is commonly called, **REI**. REI is an important link in the evolution of the full inclusion movement. The term was introduced in 1986

by former assistant secretary of education (Office of Special Education and Rehabilitative Services) Madeleine Will, who questioned the legitimacy of special education as a separate system of education and called for a restructuring of the relationship between general (regular) and special education. She endorsed the idea of shared responsibility—a partnership between general and special education resulting in a coordinated delivery system (Will, 1986b). Will recommended that general educators assume greater responsibility for students with disabilities. She envisioned a meaningful partnership whereby general and special educators would "cooperatively assess the educational needs of students with learning problems and cooperatively develop effective educational strategies for meeting those needs" (Will, 1986a, p. 415). Will (1986b) also believes that educators must "visualize a system that will bring the program to the child rather than one that brings the child to the program" (p. 21). As special educators, most of us can embrace this idea. Few professionals would dispute that the delivery of special education services would be significantly enhanced if there were greater coordination, cooperation, and collaboration between general and special educators.

regular education initiative (REI) An approach that advocates that general educators assume greater responsibility for the education of students with disabilities.

Full Inclusion

We see the movement toward **full inclusion** as an extension of REI and earlier thinking about where children with disabilities should be educated. Full inclusion represents the latest trend in meeting the requirement of providing an education in the least restrictive environment (Bennett, DeLuca, & Bruns, 1997). Fox and Ysseldyke (1997) consider full inclusion as a further attempt at operationalizing the concept of LRE. Figure 2.5 illustrates the evolution of this thought process.

full inclusion An interpretation of the principle of least restrictive environment advocating that all pupils with disabilities be educated in the general education classroom.

Full inclusion is a potentially explosive issue, with vocal supporters as well as detractors. It has emerged as one of the most controversial and complex subjects in the field of special education. As with other controversial topics, an agreed-upon definition is difficult to develop. We offer the following succinct interpretation: Full inclusion is a belief that *all* children with disabilities should be taught exclusively (with appropriate supports) in general education classrooms at neighborhood schools—that is, in the same school and age-/grade-appropriate classrooms they would attend if they were not disabled. Successful implementation will require new thinking about curriculum design along with increased collaboration between general and special educators (Noonan & McCormick, 2014). Recall that Will (1986b) originally proposed this type of partnership in her regular education initiative.

Figure 2.5 The Evolution of Placement Options for Children With Disabilities

Source: From R. Gargiulo and J. Kilgo, *An Introduction to Young Children With Special Needs,* 3rd ed. (Belmont, CA: Wadsworth/Cengage Learning, 2011), p. 144.

Although the trend in judicial interpretations is toward inclusionary placement (Yell, 2019), the LRE mandate does *not* require that all pupils be educated in general education classrooms or in their neighborhood schools. The framers of IDEA never pictured, according to Kauffman (1995), that the general education classroom located in the neighborhood school would be the least restrictive setting for all pupils. In fact, policy makers believed that a cascade of placement options would be required in order to provide an appropriate education for students with disabilities.

Advocates of full inclusion (Downing, 2008; Kennedy & Horn, 2004; Peterson & Hittie, 2010) argue that the present pullout system of serving students with special needs is ineffective. They contend that “the diagnostic and instructional models, practices, and tools associated with the EHA [PL 94–142] and mainstreaming are fundamentally flawed, particularly for students considered to have mild to moderate disabilities” (Skrtic, 1995, p. 625). Children are labeled and stigmatized, their programming is frequently fragmented, and general educators often assume little or no ownership for students in special education (a “your” kids versus “my” kids attitude). Placement in a general education classroom, with a working partnership between special education teachers and general educators, would result in a better education for all pupils, not just those with special needs, and would occur within the context of the least restrictive environment.

Full inclusion results in students with disabilities being seen as full-fledged members of the general education classroom.

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When correctly instituted, full inclusion is characterized by its virtual invisibility. Students with disabilities are not segregated but dispersed into classrooms they would normally attend if they were not disabled. They are seen as full-fledged members of, not merely visitors to, the general education classroom. Special educators provide an array of services and supports in the general education classroom alongside their general

education colleagues, often using strategies such as cooperative teaching in an effort to meet the needs of the pupils. Table 2.8 summarizes the key components of most models of full inclusion.

Table 2.8 Representative Components of Full Inclusion Models

Table 2.8 Representative Components of Full Inclusion Models

Component	Description
"Home school" attendance	Defined as the local school the child would attend if he or she did not have a disability.
Natural proportion at the school site	The percentage of children with special needs enrolled in a particular school is in proportion to the percentage of pupils with exceptionalities in the entire school district; in general education classes, this would mean approximately two to three students with disabilities.
Zero rejection	All students are accepted at the local school, including those with severe impairments; pupils are not screened out or grouped separately because of their disability.
Age-/grade-appropriate placement	A full inclusion model calls for serving children with special needs in general education classrooms according to their chronological age rather than basing services on the child's academic ability or mental age.

Full inclusion is definitely a controversial topic; even professional organizations have opposing viewpoints. For instance, TASH (formerly The Association for Persons with Severe Handicaps) has issued a statement fully supporting inclusion, which it considers to be a national moral

imperative. However, the desirability of full inclusion is questioned in some professional circles. The Council for Learning Disabilities, for example, endorses the continuation of service delivery options. The Council for Exceptional Children (CEC), the premier professional organization in the field of special education, has also taken a stand on this issue. Its policy statement on full inclusion reads as follows:

> The Council for Exceptional Children believes that all children, youth, and young adults with disabilities are entitled to a free and appropriate education and/or services that lead to an adult life characterized by satisfying relations with others, independent living, productive engagement in the community, and participation in society at large. To achieve such outcomes, there must exist for all children, youth, and young adults with disabilities a rich variety of early intervention, educational, and vocational program options with experiences. Access to these programs and experiences should be based on individual educational need and desired outcomes. Furthermore, students and their families or guardians, as members of the planning team, may recommend the placement, curriculum option, and the exit document to be pursued.
>
> CEC believes that a continuum of services must be available for all children, youth, and young adults. CEC also believes that the concept of inclusion is a meaningful goal to be pursued in our schools and communities. In addition, CEC believes children, youth, and young adults with disabilities should be served whenever possible in general education classrooms in inclusive neighborhood schools and community settings. Such settings should be strengthened and supported by an infusion of specially trained personnel and other appropriate supportive practices according to the individual needs of the child. (Council for Exceptional Children, 2014, p. H-6)

The argument, as we see it, is not about *what* is taught or the kinds of services to be provided to students with disabilities, but about *where* services are to be provided. We ought to be primarily concerned with how best to achieve the desired educational outcomes appropriate to the needs of the individual learner, rather than with the specific setting in which this occurs. Finally, there is one perplexing issue that still must be resolved. If we have accurately portrayed and interpreted full inclusion, then we believe it represents a radical departure from the concept of a cascade of placement options and, therefore, may well be a violation of current federal law. We suspect that, unfortunately, the resolution of this debate will rest with the courts.

Chapter in Review

Litigation and Legislation Affecting Special Education (Learning Objective 2.1)

- National and state laws, along with their subsequent interpretation by the courts, have certainly helped shape and define contemporary special education policy and procedures.

Educational Reform: Standards-Based Education (Learning Objective 2.2)

- The No Child Left Behind Act is an example of federal legislation that focuses on educational accountability. All students, including those with a disability, are expected to demonstrate proficiency in key academic subjects.
- The reauthorization of the Individuals with Disabilities Education Act in 2004 (PL 108–446) aligns this legislation with some of the provisions of the No Child Left Behind Act. In addition, substantial changes occurred in the following areas of the law: the IEP process, the identification of an individual for a possible learning disability, teacher qualifications, student discipline, due process procedures, the evaluation of pupils, and participation of individuals with disabilities in state- and districtwide assessments.

Civil Rights Legislation (Learning Objective 2.3)

- Section 504 of PL 93–112 is the first federal law specifically aimed at protecting children and adults against discrimination due to a disability.
- The Americans with Disabilities Act (PL 101–336), which parallels Section 504 of PL 93–112, forbids discrimination against individuals with disabilities in both the public and private sectors of society.

Identification and Assessment of Individual Differences (Learning Objective 2.4)

- Interindividual differences are those characteristics that distinguish each student from his or her classmates. Interindividual differences might include distinctions based on height, intelligence, or gross motor skills.
- Intraindividual differences are differences within a particular student—that child's unique profile of strengths and needs.

Referral and Assessment for Special Education (Learning Objectives 2.5 and 2.6)

- When properly conducted, educational assessments lead to the development of meaningful individualized education programs (IEPs) and individualized family service plans (IFSPs).
- Multidisciplinary teams use norm- and criterion-referenced tests to determine if a student is eligible to receive a special education and/or related services.

Designing Individualized Instructional Programs (Learning Objective 2.7)

- An IEP is essentially a management tool that stipulates who will be involved in providing a special education, what services and instruction will be provided, where they will be delivered, and for how long. In addition, the IEP is designed to gauge whether or not goals are successfully achieved.
- An IFSP is the driving force behind the delivery of early intervention services to infants and toddlers and their families.
- The IFSP is family focused and is designed to preserve the parent's role of primary caregiver and principal decision maker. It must address the concerns and priorities of the family while also acknowledging the resources and strengths of the family.

Service Delivery Options: Where a Special Education Is Provided (Learning Objective 2.8)

- According to the principle of least restrictive environment (LRE), services are to be provided in the setting that most closely approximates the general education classroom while still meeting the unique needs and requirements of the learner.
- Mainstreaming represents a popular interpretation of the principle of LRE.
- Implicit in the mandate of LRE is the notion of a continuum or cascade of service delivery options—a hierarchy of educational environments that allows for customized placement possibilities based on the needs of the individual pupil.
- Full inclusion seeks to place all students with disabilities, regardless of the type or severity of their impairment, in age-/grade-appropriate classrooms at neighborhood schools.
- The concept of full inclusion evolved from the regular education initiative, which sought a shared responsibility or partnership between general and special educators, resulting in greater collaboration and cooperation in meeting the needs of pupils with disabilities.

Study Questions

1. How have litigation and legislation influenced the field of special education?
2. What is the significance of the following cases?
    - *Brown v. Board of Education of Topeka, Kansas*
    - *Pennsylvania Association for Retarded Children v. Commonwealth of Pennsylvania*
    - *Larry P. v. Riles*
    - *Board of Education of the Hendrick Hudson Central School District v. Rowley*
    - *Daniel R.R. v. State Board of Education*
3. Name and describe the six major components and guarantees contained in PL 94–142.
4. What was the purpose of the Americans with Disabilities Act? List four areas where this law affects the lives of individuals who are disabled.
5. How did PL 108–446 modify PL 105–17?
6. Distinguish between interindividual and intraindividual differences.
7. How do prereferral interventions benefit the student suspected of requiring a special education?
8. How do norm-referenced and criterion-referenced tests differ?

9. List the key elements required of a meaningful IEP. Who is responsible for developing this document?
10. Compare the provisions and purpose of an IFSP with those of an IEP.
11. Define the following terms: *mainstreaming*, *least restrictive environment*, and *regular education initiative*. How are these terms related to the mandate of providing services in the LRE?
12. Distinguish between a cascade of services delivery model and the philosophy of full inclusion. What do you see as the advantages and disadvantages of full inclusion?

Key Terms

interindividual differences, 53
intraindividual differences, 53
prereferral intervention, 54
referral, 55
child-find, 55
assessment, 56
multidisciplinary team, 56
norm-referenced assessments, 57
criterion-referenced assessments, 57
least restrictive environment (LRE), 63
mainstreaming, 66
regular education initiative (REI), 67
full inclusion, 67

Learning Activities

1. Interview an administrator of special education programs for your local school district. Find out how court decisions and legislative requirements have affected the delivery of special education services. Here are some suggested topics for discussion:
    - How has special education changed over the past several years as a result of judicial and legislative mandates?
    - What does the school district do to protect the rights of the students, involve parents, ensure due process, and assess in a nondiscriminatory manner?
    - How is the school district meeting the requirement of educating pupils with disabilities in the least restrictive environment?
    - What are the perceived advantages and disadvantages of IDEA at the local level?
2. Obtain a copy of your state's special education law. How do the requirements and provisions of the law compare with IDEA?
3. Obtain samples of several IEPs and IFSPs from different school districts in your vicinity. In what ways do the forms differ? How are they the same? Do they fulfill the requirements of the law as outlined in your textbook?
4. Visit several elementary and high schools in your area. What service delivery options are available for students with disabilities? Are children with different

exceptionalities served in similar settings? Ask the teachers what they believe are the advantages and disadvantages of their particular environment.

Reflecting on Standards

The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Professional Learning and Ethical Practice (CEC Initial Preparation Standard 6.2)

Reflect on what you have learned in this chapter about the rights of individuals with disabilities. What measures would you take in your classroom to make sure that your students were educated in the least restrictive environment possible?

Focus on Learner Development and Individual Learning Differences (CEC Initial Preparation Standard 1.2)

Reflect on what you have learned in this chapter about understanding the uniqueness of each of your students. Pair up with another student and assess his or her intraindividual differences (unique patterns of strengths and needs). If you were to create an individualized education program for this "student," what unique needs would he or she have?

Student Study Site

Sharpen your skills with SAGE edge at **edge.sagepub.com/gargiulo7e**. SAGE edge for students provides a personalized approach to help you accomplish your coursework goals in an easy-to-use learning environment.

3 Cultural and Linguistic Diversity and Exceptionality

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Learning Objectives

After reading Chapter 3, you should be able to:

3.1 **Explain** how cultural and linguistic diversity is affecting U.S. classrooms.
3.2 **Define** *culture*, *multiculturalism*, *multicultural education*, and *bilingual education*.
3.3 **Identify** six instructional options for teaching students who are bilingual.
3.4 **Summarize** the issues associated with the disproportionate representation of culturally and linguistically diverse learners in special education.
3.5 **Describe** the challenges confronting educators when assessing students from culturally and linguistically diverse groups.
3.6 **Discuss** instructional strategies for students with exceptionalities who are culturally and linguistically diverse.

The United States is an enormously diverse and pluralistic society—an amalgamation of different races, languages, folkways, religious beliefs, traditions, values, and even foods and music. As a nation, we greatly benefit from this cultural mixture; it is a defining characteristic of the United States and one of its great strengths. Perhaps nowhere else is this diversity more noticeable than in our schools.

Although in many instances we value and celebrate the richness of American diversity, all too often cultural differences result in prejudice and stereotypes as well as outright discrimination and unequal opportunities. Unfortunately, this statement is a valid characterization of some U.S. schools. In some of our public schools, children from minority groups are seen as less than capable and/or difficult to teach. To our way of thinking, this situation is unacceptable and inexcusable. As educators working in increasingly culturally diverse environments, we need to model respect for and sensitivity to the cultural and linguistic characteristics represented by our students and their families.

The goal of this chapter is to examine the link between cultural and linguistic diversity and exceptionality. We will explore the historical patterns of American reaction to and acceptance of people from other lands. We will discuss issues of multicultural and bilingual education and consider

the multitude of challenges confronting teachers who work with students with special needs from culturally and linguistically diverse backgrounds (see the accompanying Insights feature on page 76).

Cultural Diversity: The Changing Face of a Nation

The United States is made up of people from many different lands; in fact, only about 2 percent of Americans are native (U.S. Department of Health and Human Services, 2019). A vast number of Americans are descended from the millions of immigrants who entered the United States through Ellis Island, located in lower New York Harbor, in the latter part of the nineteenth and the early decades of the twentieth century. Immigration to the United States has continued since then, but the countries of origin have shifted from Europe to Latin America and Asia (Lustig & Koester, 2018). In 2017, approximately 44.5 million immigrants lived in the United States, accounting for about 13.7 percent of the total U.S. population (Zong, Batalova, & Hallock, 2019).

Insights
Cultural and Linguistic Diversity Quiz

True or False?

1. Many teachers have little or no training in working with children from diverse cultural and linguistic backgrounds.
2. Multicultural education is for all students.
3. Cultural differences have little effect on the way students learn.
4. Immigrants are in the United States to stay. The best thing teachers can do is to help them assimilate.
5. Young children don’t really notice differences, so why make a big deal of multicultural education? It is better to be color-blind.
6. Schools in which there are no minority groups don’t need a multicultural perspective.
7. The great majority of general and special education teachers in the United States come from the dominant culture.
8. Older students from diverse backgrounds are more at risk for educational failure than are younger children.
9. Most of the concepts of multicultural education are simply too difficult for children with disabilities.

10. A school should reflect and sanction the range of languages and dialects spoken by the students.
11. Multicultural education is a total curricular and instructional approach.
12. Children from minority groups are overrepresented in special education and underrepresented in programs for the gifted and talented.

(Answers on page 97)

Source: Adapted from M. Winzer and K. Mazurek, *Special Education in Multicultural Contexts* (Upper Saddle River, NJ: Prentice Hall, 1998), pp. 8, 45, 168.

What are the implications of the following estimates and projections for our schools and classroom practices?

- By the year 2020, students of color are projected to make up almost half of all school-age youth (Gollnick & Chinn, 2017).
- By the year 2060, the U.S. population is projected to be approximately 44 percent Anglo, 28 percent Latino, 13 percent black, 9 percent Asian, and 1 percent American Indian or Alaska Native with about 5 percent of citizens identifying themselves as belonging to two or more groups (U.S. Census Bureau, 2014).
- Approximately one in four children (23%), or over 12.1 million individuals ages 5–17, speak a language other than English at home (Kids Count Data Center, 2019).
- At the present time, children of color make up the majority of students in several states (for example, California, Texas, and Mississippi) and many urban areas, including Detroit, Los Angeles, Atlanta, Miami, Baltimore, New York, Chicago, Birmingham, and Houston (Gollnick & Chinn, 2017; Lustig & Koester, 2018).
- Despite the increasing cultural and linguistic diversity within our schools, the overwhelming majority (over 80%) of educators are white and female (U.S. Department of Education, 2016).
- Children from minority groups are often disproportionately represented in special education programs. Enrollment patterns suggest, for instance, an overrepresentation of African Americans in classes for students with intellectual disability or behavior disorders. Asian Americans are underrepresented in those programs but tend to be overrepresented in programs for individuals who are gifted and

talented (Gollnick & Chinn, 2017; Sullivan, 2011; Waitoller, Artiles, & Cheney, 2010).

The reasons for these changing demographics are many and varied. They include shifting immigration patterns and varying birthrates among women of various ethnic groups as well as other factors.

It is abundantly clear that the ethnic makeup of the United States is changing. It is equally obvious that this diversity will be reflected in our schools. Classrooms in the coming years will evidence even greater diversity than we find today. Teachers will most likely encounter families whose beliefs and practices vary significantly in important ways from those of mainstream American families. The challenge confronting educators and other professionals is how best to meet the needs of this changing and expanding population of learners.

The diversity of our teaching workforce has failed to keep pace with the growing number of students from culturally and linguistically diverse backgrounds.

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Cultural Diversity in the Teaching Profession

As the number of students from culturally and linguistically diverse backgrounds continues to grow, the diversity of our teaching workforce has failed to keep pace with this expansion. At the present time, there is a notable absence of racial diversity among educators; teachers do not reflect the diversity of students they teach (Ford, 2012; Gollnick & Chinn, 2017; Pollard, 2016). Approximately 83 percent of public school teachers are white, about 6 percent are African American, almost 8 percent are Hispanic, and only about 2 percent are Asian (U.S. Department of Education, 2016). Overall, this situation is not expected to improve; in fact, it is projected that the teaching profession will become increasingly homogeneous in the coming years (National Education Association, 2019).

We do not wish to imply or suggest that students who are culturally and linguistically diverse should be taught exclusively by teachers from traditionally underrepresented groups. There is little empirical evidence to suggest that children “of color learn better when taught by teachers of color” (Ladson-Billings, 1994, p. 26). Such a proposal would be neither feasible nor desirable and, according to Voltz (1998), would be counter to the goal of achieving greater diversity in the teaching force.

Schools in the United States are grounded in white, middle-class values, a culture that may hold little meaning for vast numbers of children who are poor and/or from ethnically or culturally diverse backgrounds (Benner, 1998). Still, most teachers, regardless of their own cultural and ethnic heritage, belong to the middle class and subscribe to the values of this group. Teachers from minority groups play a critical role in the education of all children, but especially for pupils from minority populations. In addition to serving as role models, these professionals often act as “cultural translators” and “cultural mediators” (National Collaborative on Diversity in the Teaching Force, 2004; Smith, Smith-Davis, Clarke, & Mims, 2000) for these students, helping them function successfully in the dominant culture.

From Assimilation to Cultural Pluralism

Issues of multiculturalism and bilingualism have challenged educators for almost a century. In the early decades of the twentieth century, one aim of schools was to assimilate children of immigrants into American culture as quickly as possible. There was a widely held belief that public education could unite the population and instill the ideals of American society in diverse groups of people. The goal of this assimilation or homogenizing process was to "Americanize" vast numbers of new citizens. They were expected to abandon their native languages, cultural heritage, beliefs, and practices. In their place would emerge a common American culture—*E pluribus unum* ("Out of many, one")—with an allegiance to the "American way of doing things." Metaphorically speaking, the United States was seen as a huge **melting pot**—a cauldron into which diverse people were dumped to melt away their differences, thus creating a citizenry who were very much alike (Tiedt & Tiedt, 2010).

> **melting pot** A metaphor describing the United States in the early decades of the twentieth century.

For a variety of political and social reasons, Americans in the 1960s slowly began to question the wisdom of a melting pot theory as the country struggled with issues of civil rights and equal opportunity. Schools were no longer seen as the primary vehicle for homogenizing new citizens; instead, a student's ethnic heritage was to be valued and prized. Interest in cultural pluralism and multicultural education was ignited. As a result, a new set of metaphors evolved to counter the philosophy of America as a melting pot. The United States is now likened to a patchwork quilt or a floral bouquet.

The notion of the United States as a melting pot society has gradually given way to **cultural pluralism** wherein cultural and ethnic differences are appreciated and respected. Cultural pluralism does *not* require cultural groups to relinquish or abandon their cultural heritage. Schools now value

the richness that diversity brings to the classroom; diversity is seen as a strength rather than a weakness.

cultural pluralism The practice of appreciating and respecting ethnic and cultural differences.

Terminology of Cultural Differences

Educators and other professionals in the field of education are confronted with a barrage of labels and terms used to describe the education of children from different cultural backgrounds. Sometimes this terminology contributes to inaccurate generalizations, stereotyping, and incorrect assumptions about certain individuals or groups of people. In some instances, it is even difficult to know how to correctly describe the youngsters themselves. Do we, for example, refer to some children as black or African American? Is it more appropriate to identify a student as Hispanic or Latino, and how about pupils from Asian cultures? Also, what is the difference between bilingual education and multicultural education? As you can see, the topic of cultural and linguistic diversity can easily become a source of confusion and controversy. Perhaps it is best to begin our discussion of key terminology by arriving at an understanding of what we mean by culture.

Culture

We define **culture** as the attitudes, values, belief systems, norms, and traditions shared by a particular group of people that collectively form their heritage. A culture is transmitted in various ways from one generation to another. It is typically reflected in language, religion, dress, diet, social customs, and other aspects of a particular lifestyle (Gargiulo & Kilgo, 2020). Siccone (1995) points out that culture also includes the way particular groups of people interpret the world; it provides individuals with a frame of reference or perspective for attaching meaning to specific events or situations, such as the value and purpose of education or the birth of a child with a disability.

culture The attitudes, values, belief systems, norms, and traditions shared by a particular group of people that collectively form their heritage.

Gargiulo and Kilgo (2020) caution educators to guard against generalizing and stereotyping when working with pupils from various cultural groups. Even within specific groups, each person is unique, even though all members of the group may share distinctively similar group characteristics. Two students from the same racial group will most likely perform quite differently in the classroom regardless of their shared cultural heritage.

> Because of the increasing diversity of our society, the United States is now often likened to a floral bouquet or a patchwork quilt.

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Multiculturalism

We live in a multicultural society, yet **multiculturalism** is frequently a confusing and poorly understood concept. In its most basic interpretation, multiculturalism refers to more than one culture. It acknowledges basic commonalities among groups of people while appreciating their differences. Implicit within the concept of multiculturalism is the belief that an individual can function within more than one culture. Multiculturalism also provides us with a foundation for understanding multicultural education.

multiculturalism Referring to more than one culture; acknowledges basic commonalities among groups of people while appreciating their differences.

Multicultural Education

Multicultural education is an ambiguous and somewhat controversial concept. Sleeter and Grant (2009) characterize multicultural education as an umbrella concept involving issues of race, language, social class, and culture as well as disability and gender. Banks (2016) and Gollnick and Chinn (2017) portray multicultural education as an educational strategy wherein the cultural background of each pupil is valued, viewed positively, and used to develop effective instruction.

> **multicultural education** An ambiguous concept that deals with issues of race, language, social class, and culture as well as disability and gender. Also viewed as an educational strategy wherein the cultural heritage of each pupil is valued.

Bilingual Education

A term frequently associated with multicultural education is **bilingual education**, an equally controversial and somewhat confusing concept. The two are not synonymous, however. Multicultural education can be infused throughout the curriculum without the benefit of bilingual education. Simply defined, bilingual education is an educational strategy whereby students whose first language is not English are instructed primarily through their native language while developing their competency and proficiency in English. Teachers initially use the language that the child knows best (Baca & Baca, 2004b). Once a satisfactory command of English is achieved, it becomes the medium of instruction.

> **bilingual education** An educational approach whereby students whose first language is not English are instructed primarily through their native language while developing competency and proficiency in English.

Describing Diversity

U.S. society is an amalgamation of many different cultures. The U.S. government, however, officially recognizes only a handful of distinct racial groups. The federal government uses this classification scheme when reporting, for example, Head Start enrollment, poverty figures, high school graduation rates, and other such statistics. Citizens of the United States are typically categorized as follows:

- *American Indian or Alaska Native*. A person having origins in any of the original peoples of North and South America and who maintains cultural identification through tribal affiliation or community recognition.
- *Asian*. A person having origins in any of the original peoples of the Far East, Southeast Asia, and the Indian subcontinent. This area includes, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
- *Black.* A person having origins in any of the black racial groups of Africa.
- *Hispanic*. A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race.
- *Native Hawaiian or Other Pacific Islander.* A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- *White*. A person having descended from any of the original peoples of Europe, North Africa, or the Middle East.
- *Two or more races*. An individual who selects two or more of the preceding categories when offered the option of indicating his or her racial designation (National Center for Education Statistics, 2018).

We should point out that the preceding descriptions are arbitrary and represent umbrella terms. This terminology camouflages immense cultural and racial variability while obscuring the richness of individual cultures. Regardless of how specific groups of people are described, the diversity and

variation within each group are tremendous. Various cultural groups are anything but homogeneous; differences are likely to be found in language, ethnicity, social class, home country, and a host of other dimensions (Lustig & Koester, 2018). It is important for teachers to acknowledge and respect this heterogeneity. They must also guard against perpetuating ethnic and racial stereotypes. Educators frequently fail to use qualifiers such as *some*, *many*, or *most* when discussing various cultural groups. This insensitivity to individuality can easily result in students' receiving an erroneous, oversimplified, and possibly stereotypical impression of a particular racial group (Ryan, 1993).

Teachers must also guard against assuming that the behaviors, beliefs, and actions of their particular cultural group are the correct or only way of doing something. Such assumptions reflect **ethnocentrism**—viewing one's own cultural group characteristics as superior or correct and the ways of other groups as inferior or peculiar.

ethnocentrism A perspective whereby a person views his or her cultural practices as correct and those of other groups as inferior, peculiar, or deviant.

Multicultural Education, Bilingual Education, and Student Diversity

By now it should be apparent that multicultural education is closely intertwined with issues of student diversity. Because the clientele of American schools is rapidly changing, there has been much debate and controversy over how best to educate children with culturally and linguistically diverse backgrounds. It is axiomatic that all students are different and not all people learn in the same way; this is especially true for students who are culturally and linguistically diverse. It would be foolish for teachers to expect children (or adults, for that matter) to leave their values, traditions, beliefs, and even language at the schoolhouse door. Effective teachers are sensitive to the cultural heritage of each learner and attempt to provide educational experiences that are culturally relevant and culturally appropriate.

Multicultural Education: Concepts and Characteristics

Embedded within the concept of multicultural education is a belief that all students, regardless of their race, ethnicity, culture, and other characteristics, such as social class or disability, should experience equal educational opportunities. It is important for all teachers to remember that multicultural education is an orientation or a perspective and not a specific pedagogical technique or a subject to be taught.

Throughout this chapter, we have stressed the multicultural nature of U.S. society. At the heart of this society is a core national culture, identified as the **macroculture**, which represents a shared culture. Traits such as individualism, independence, competitiveness, and ambition are characteristic of the American macroculture (Gollnick & Chinn, 2017), along with values such as equality and fair play. Within this larger culture are several distinct subcultures, or **microcultures**, which, while sharing attributes of the macroculture, maintain their own distinct values, norms, and behaviors. The United States is composed of many different microcultures, as illustrated in Figure 3.1. According to Banks (2016), the various microcultures to which a person belongs are interrelated and interact with one another to collectively influence the individual's behavior. Membership in a particular group does not define a person's behavior, but it does make certain types of behavior more likely.

macroculture The shared or national culture of a society.

microcultures Distinct subcultures within a larger culture; these groups maintain their own distinct values, norms, folkways, and identification.

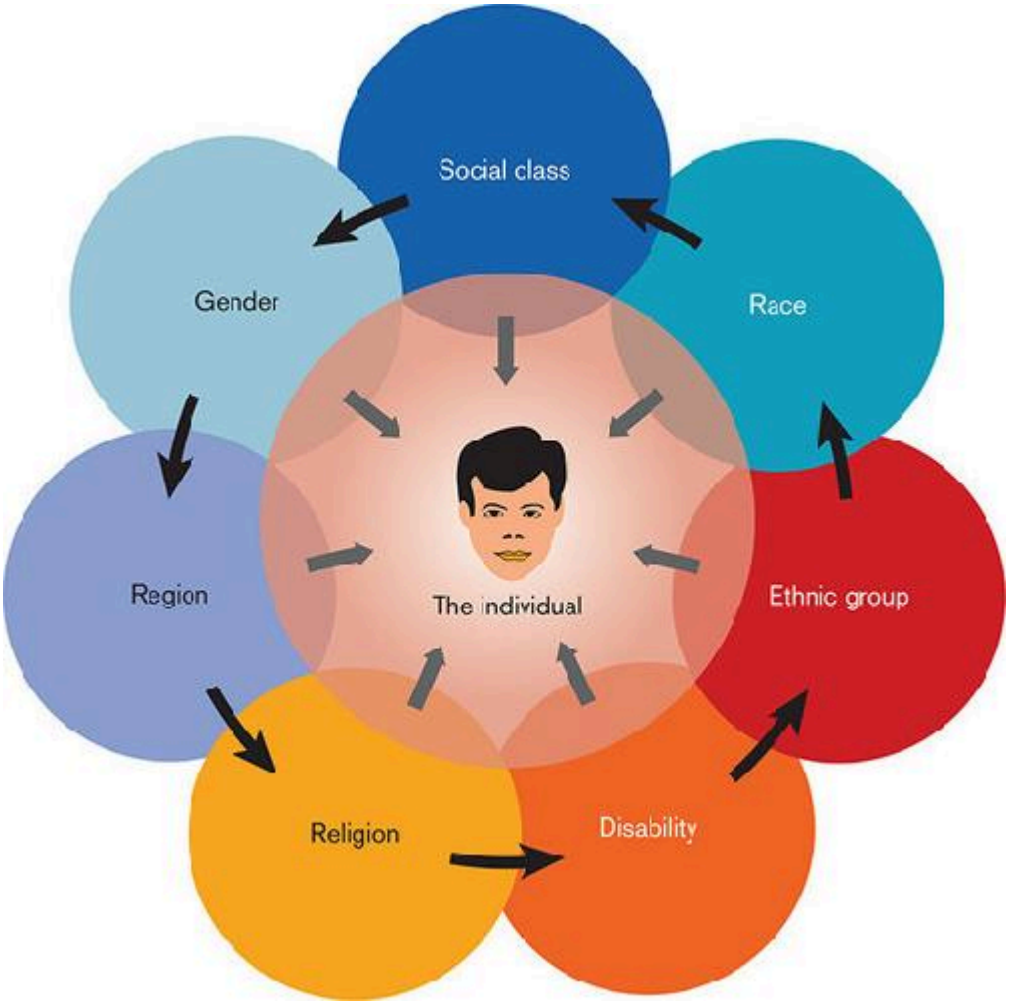
Differences between the various microcultures and the macroculture are frequently a source of conflict and misunderstanding. A major goal of multicultural education, therefore, is for pupils to acquire the knowledge, attitudes, and skills needed to function effectively in each cultural setting

(Banks, 2016). Banks argues that students in contemporary society should be able to function in their own as well as other microcultures, the macroculture, and the global community.

Bilingual Education: Concepts and Characteristics

As noted previously, multicultural education and bilingual education are not the same thing. Multicultural education can exist independently of bilingual education, but bilingual education cannot exist without multicultural education because it emphasizes the student's culture as well as language. As previously noted, estimates suggest that there are in excess of 12 million school-age children whose primary language at home is not English (Kids Count Data Center, 2019). Yet controversy and debate continue over how best to meet the needs of these students. In many school districts, bilingual education provides one possible answer. Not everyone, however, agrees with this strategy. Thirty-two states have enacted legislation or passed constitutional amendments establishing English as the "official" language of their state (U.S. English, 2019), and five states actually prohibit bilingual education in their schools (Baca & Baca, 2004a).

Figure 3.1 Influence of Microcultures on an Individual's Behavior



Source: Adapted from J. Banks, *Cultural Diversity and Education*, 5th ed. (Needham Heights, MA: Allyn & Bacon, 2006), p. 77.

Students whose first language is not English represent a very heterogeneous group of individuals. Their competency in their primary language, as well as in English, may vary greatly. According to contemporary professional practice, these pupils are often identified as **English learners (ELs)**—individuals whose primary or home language is not English and who have yet to achieve proficiency in English. Consequently, these students are often unable to profit fully from instruction provided in English.

English learners (ELs) Students whose primary language is not English and who have yet to achieve proficiency in English.

The primary purpose of bilingual education programs is to provide assistance to students with limited abilities in English so that they can "function effectively in both their native language and English. . . . The student's native language and culture are taught concurrently with English and the dominant culture" (Gollnick & Chinn, 2006, p. 299). The result is that the pupil becomes bilingual and bicultural in the process. Similarly, Baca and Baca (2004b), authorities in the field of bilingual education, see the primary mission of bilingual education as providing instruction to pupils using the language they know best and then reinforcing this information through English, while also promoting cognitive as well as affective development and cultural enrichment. Although it is not explicitly stated, we believe that one of the principal goals of bilingual education is to provide increased educational opportunities for students whose native language is not English. It is interesting to note that, contrary to popular belief, the original aim of bilingual education was not to advocate bilingualism but rather to promote the acquisition of English language skills. Bilingual education was thought to be the quickest way for a non-English-speaking person to become literate in English (Janzen, 1994).

The research evidence on the effectiveness of bilingual education generally suggests that bilingual education is the most appropriate approach for working with students who are ELs. Greater academic gains and improved language skills can be directly attributed to bilingual education (Valentino & Reardon, 2015). Of course, the key to effective bilingual education is to match the instructional strategy to the specific needs and background of the student. Depending on the child's proficiency in his or her native language and English, different instructional models are used. The accompanying Insights feature (page 83) summarizes some of the approaches typically used with students who are bilingual while the First Person feature (page 83) describes one teacher's experiences working with ELs.

Experts in the field of bilingual education disagree as to which pedagogical strategy is most effective for teaching students who are bilingual. There is general agreement, however, that the more opportunities individuals have to use their newly acquired language skills with classmates, friends, family members, and others, the more proficient they will become. In comparison

to classroom settings, the natural environment seems to better facilitate language development.

Educators must consider carefully when they transition students with emerging proficiency in English to all-English classrooms. Many of these pupils' academic failures appear to be due to transitioning too quickly. Conversational fluency typically develops in children who are ELs after approximately two years of instruction. Teachers, therefore, assume that pupils are ready to move on because they appear to be proficient in English. However, according to investigators (Hoover, Klinger, Baca, & Patton, 2008; Salend & Salinas, 2003), the deeper and more complex language skills needed for academic success require an additional five to seven years of instruction. Movement to a monolingual English class setting should occur only if the teacher is certain that the student possesses the requisite language skills to compete in an academic environment.

Bilingual Special Education: Concepts and Characteristics

Students who are culturally and linguistically diverse *and* disabled present significant challenges for educators. How do we meet the needs of this growing population of pupils? What is the most normalized environment for students experiencing "double jeopardy"—that is, linguistic differences and disability? Which area should teachers primarily focus on—the problems posed by the disability or the lack of proficiency in English? These questions have no easy answers. One frequently mentioned solution is to place these pupils in classrooms with a special educator who is bilingual. In the majority of instances, however, this is not a feasible solution because of a severe shortage of qualified personnel (Council for Exceptional Children, 2011). What these students truly need is an instructional model known as **bilingual special education**. Baca, Baca, and de Valenzuela (2004) define this concept as

bilingual special education Strategy whereby a pupil's home language and culture are used along with English in an individually designed program of special instruction.

> the use of the home language and the home culture along with English in an individually designed program of special instruction for the student in an inclusive environment. Bilingual special education considers the child's language and culture as foundations upon which an appropriate education may be built. (p. 18)

The main goal of these efforts is to assist the pupil in reaching his or her maximum potential. The student's primary language and culture are the vehicles for accomplishing this task.

One of the critical issues confronting professionals is how to merge two different programs, bilingual education and special education, into one cogent paradigm. The integration of these two programs requires a focus not only on the acquisition of English language proficiency but also on the construction of individualized educational interventions. The goal is the development of both academic and English language skills, which often requires a team approach. Meaningful instruction for pupils who are culturally and linguistically diverse and disabled entails a coordinated effort involving general educators, special education teachers, and bilingual educators (Gollnick & Chinn, 2017; Salend & Salinas, 2003).

Insights
Instructional Options for Students Who Are Bilingual

Approach	Strategies
1. Transitional programs	Students are instructed in academic content areas via their native language only until they are sufficiently competent in English, then transition to all-English classes. Primary goal of this program is to move students as quickly as possible to English-only classes. Many students exit after two to three years of instruction. Most common instructional model; bilingual education legislation favors this approach.
2. Maintenance (developmental) programs	Strong native language emphasis. Pupils maintain proficiency in first language while receiving instruction in English. A long-term approach with less emphasis on leaving program. Solid academic foundation is stressed.
3. Enrichment programs	Typically used with monolingual children, who are introduced to new language and culture.
4. Immersion programs	English language is the exclusive medium of instruction; first language and culture are not incorporated. A “sink or swim” philosophy.

Approach	Strategies
5. English as a second language (ESL) programs	Not a true form of bilingual education. Children typically receive instruction in English outside the regular classroom. Goal is to quickly develop English proficiency in bilingual students. Exclusive emphasis on English for teaching and learning; native language not used in instruction. An assimilationist model with multiple variations.
6. Sheltered English	Students receive instruction in academic subjects exclusively in English; no effort is made to maintain or develop proficiency in first language. English instruction is continually monitored and modified to ensure pupil's comprehension. Simultaneous exposure to English language and subject content matter. Pupils who are culturally and linguistically diverse and disabled present unique challenges for teachers.

Attempts at providing a special education to pupils who are ELs have frequently encountered a number of problems, including challenges obtaining an accurate diagnosis coupled with assessment difficulties, which often lead to an inappropriate placement. These issues are intricately interrelated and complementary and must be considered within a broader context. Most educators recognize that disability and cultural and linguistic differences are related phenomena that play a significant role in a student's learning and development. Cultural and linguistic characteristics frequently coexist and interact with disability-related factors (Sullivan, 2011). Consider if you will Ramón, a 9-year-old boy identified as having an intellectual disability and limited English language skills. Ramón's parents are migrant workers. His family of six has an income below the federal poverty line. Ramón's special education program must address the interaction of these confounding variables. Winzer and Mazurek (1998) caution teachers to remember that pupils who are ELs do not give up their right to bilingual education when found to be eligible for special education services.

First Person: Jenny Teaching English Learners

I began my teaching career as a French and English teacher in a large school system in an urban high school. The majority of the student population was African American. In my first year of teaching I had a couple of students in my French class from Vietnam who were English learners (ELs). Perhaps because I was a language teacher, I was very interested in learning what instructional techniques I could use to help them. At that time, the school only offered an immersion program. I was very frustrated by this policy and wished that I spoke Vietnamese so that I could better support my students. After three years, I moved and began teaching in a middle-class suburban high school in a small school district. This high school has increased in its cultural and economic diversity during my twenty years of teaching there.

In my first years there, I sought opportunities to work with the few ELs who were in the school. Initially, the ELs included a variety of European, Asian, and African students who were the children of professionals, such as researchers and college professors. I developed the first English as a second language (ESL) program classes at the school, using my knowledge as a language teacher. I provided support to students with their assignments in content classes and collaborated with their teachers regarding accommodations and assessments. After a couple of years, our ESL program began assessing the English proficiency of the students and creating instructional plans. I think that being both an ESL teacher and a general education teacher helped me to collaborate with other general education teachers—we spoke the same language, and I had to do what I suggested my colleagues do.

Gradually our high school EL population increased and changed. Currently, the majority of our students are Hispanic, and most of their parents are employed in the service industry. I went back to school and completed a master's degree in special education and certification as an ESL teacher. As a result of my training and the changes in our EL population, I coauthored curriculum for sheltered English courses to supplement our ESL classes. I also began to co-teach in some content-area classes. I still have the occasional opportunity to teach an English class, where I hone my skills at accommodation and have to practice what I ask other teachers to do. In addition, because of my degree in special education, I am a more effective advocate for the appropriate assessment of ELs who might be eligible for special education services.

One of the biggest challenges my students face is acquiring English proficiency while meeting requirements for graduation—both earning credits and passing graduation exams. As older learners, my pupils have less time to acquire English proficiency and greater course requirements to master. Other challenges may include differences in learning styles and educational expectations. In addition, teachers of ELs may have confusion about or resistance to differentiating instruction for ELs. Most teachers never expected to also have to teach their students to speak English. They may also have strong feelings about teaching students who might be undocumented immigrants.

Addressing the challenges ELs and their teachers face can be demanding, yet being an ESL teacher is a highly rewarding job. I get to work with students and their families over

a period of several years and to learn from them about their cultures. I observe them sharing their culture with other students and becoming successful in academic and extracurricular activities.

—*Jenny Harvey*

ESL Teacher

Homewood High School, Homewood, Alabama

PL 108–446 directly speaks to the issue of appropriate programming for these children. A student *cannot* be considered eligible for special education services under this law if his or her educational difficulties are primarily the result of limited proficiency in English or poor instruction.

Disproportionate Representation of Minority Students in Special Education Programs

The disproportionate presence of pupils from minority groups in special education programs has been a pressing and volatile concern of educators for several decades (Anastasiou, Morgan, Farkas, & Wiley, 2017; Ford, 2012; Zhang, Katsiyannis, Ju, & Roberts, 2014). The fact that greater numbers of children from minority groups are placed in special education programs than would be anticipated based on their proportion of the general school population is commonly referred to as **overrepresentation**. At the same time, there is a long-standing pattern of **underrepresentation** (fewer students in a particular category than one might expect based on their numbers in the school population) of African Americans (blacks), American Indian/Alaska Natives, and Hispanics/Latinos in programs for children and youth who are gifted and talented (Clark, 2013; Gollnick & Chinn, 2017; Grissom & Redding, 2016). Historically speaking, Asian children are typically underrepresented in special education classes but tend to be overrepresented in classes for students who are gifted and talented (Donovan & Cross, 2002; Ford, 2012; U.S. Commission on Civil Rights, 2009; U.S. Department of Education, 2009).

overrepresentation A situation in which a greater number of students from minority groups are placed in special education programs than would be expected based on the proportion of pupils in the general school population.

underrepresentation A situation in which fewer children from minority groups are placed in special education programs than would be expected based on the proportion of pupils in the general school population.

The fact that a disproportionate number of students from minority groups are enrolled in special education classrooms is a stinging indictment of the efficacy of the professional practices of special educators and a challenge to the concept of honoring diversity—presumably the cornerstone of our field (Meyer, Park, Bevan-Brown, & Savage, 2016). At the heart of the discussion about disproportionate representation is the issue of inappropriate placement in special education programs. The primary concern is with false positives—when a pupil from a cultural or linguistic minority is identified as disabled when, in fact, he or she is *not* disabled and is therefore inappropriately placed in a class for students with disabilities. To ignore the gifts and talents of children from diverse backgrounds is equally damaging and denies them the opportunity to reach their full potential (Artiles & Zamora-Durán, 1997). Many complex factors and circumstances influence student placement; however, for those racially and ethnically diverse students who are misclassified, underidentified, or inappropriately placed, the outcomes are often serious and enduring (Morgan et al., 2017, 2018; U.S. Department of Education, 1997).

Bicard and Heward (2016) wisely note that

> the fact that culturally [and linguistically] diverse students are identified as having disabilities is not in itself a problem. . . . Disproportionate representation is problematic, however, if students have been wrongly placed in special education, are segregated and stigmatized, or are denied access to needed special education because their disabilities are overlooked as a result of their membership in a racial or ethnic minority group. (p. 230)

It should be noted that the problem of overrepresentation does not occur across all categories of disabilities. The disproportionate presence of students from minority groups primarily occurs in those disability categories in which professional judgment and opinion play a role in the decision-making process, such as mild intellectual disability or behavior disorders. Overrepresentation is generally not an issue in disability areas that have a clear biological basis. For instance, sensory or motor impairments do not yield dramatically different proportions than one would anticipate on the basis of the ethnic composition of the general school population (Anastasiou et al., 2017; Artiles, Kozleski, Trent, Osher, & Ortiz, 2010; Harry, 2014; Harry & Klinger, 2014; Skiba et al., 2008).

Students who are culturally and linguistically diverse and disabled present significant challenges for educators.

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The 1998–1999 school year was the first time that the states were required to report the race and ethnicity of students with disabilities served under the Individuals with Disabilities Education Act (IDEA). Table 3.1 presents historical data on the percentage and number of students receiving a special education in representative disability categories according to race. This illustration shows that, although black students represent only about 19 percent of the total enrollment in special education programs, approximately 28 percent of the pupils in classes for students with intellectual disability are African American. Interestingly, fewer black children are enrolled in programs for pupils with hearing impairments than one might expect based on their contribution to the total special education population. Additional representative comparisons can be found in the table.

Table 3.1 Number and Percentage of Students Ages 6–21 Receiving a Special Education for Select Disability Categories in a Representative School Year

Table 3.1 Number and Percentage of Students Ages 6–21 Receiving a Special Education for Select Disability Cat Representative School Year

Disability		American Indian/Alaska Native	Asian	Black	Hispanic/Latino	Native Hawaiian/Other Pacific Islander	Two or More Races	White
Specific Learning Disabilities	N	36,952	34,027	463,474	650,353	8,045	48,979	1,112,960
	%	1.56%	1.44%	19.68%	27.61%	0.34%	2.07%	47.26%
Speech or Language Impairments	N	12,890	34,421	151,978	258,071	2,086	25,718	586,036
	%	1.20%	3.21%	14.18%	24.09%	0.19%	2.40%	54.70%
Intellectual Disability	N	5,577	9,531	118,656	89,107	1,211	8,278	198,459
	%	1.29%	2.21%	27.54%	20.68%	0.28%	1.92%	46.06%
Emotional Disturbance	N	5,356	3,180	99,817	52,674	971	11,395	198,032

Disability		American Indian/Alaska Native	Asian	Black	Hispanic/Latino	Native Hawaiian/Other Pacific Islander	Two or More Races	White
	%	1.44%	0.85%	26.87%	14.18%	0.26%	3.06%	53.31%
Hearing Impairments	N	753	3,647	10,298	19,055	359	1,385	33,723
	%	1.08%	5.26%	14.87%	27.52%	0.51%	2.00%	48.71%
Traumatic Brain Injury	N	318	589	3,877	4,041	74	616	15,363
	%	1.27%	2.36%	15.58%	16.24%	0.29%	2.47%	61.75%
All Disabilities	N	79,993	124,727	1,093,674	1,308,211	17,057	134,325	3,027,216
	%	1.38%	2.15%	18.90%	22.61%	0.29%	2.32%	52.32%

Note: Information is for the 2011 school year.
Based on data from the fifty states, Puerto Rico, and the District of Columbia. Outlying areas not included.
Due to rounding, percentages do not always add up to 100.
Source: Adapted from U.S. Department of Education. (2012). *IDEA Data*. Retrieved March 26, 2013, from http://www.ideadata.org/PartBChildCount.asp

Currently the U.S. Department of Education assesses risk ratios when examining the issue of overrepresentation in different disability categories. A risk ratio compares the proportion of a specific racial group served under IDEA to the proportion served among other racial groups combined. The question they seek to answer is, are children from a particular racial group more likely to receive special education services than individuals from other racial/ethnic groups? When examining patterns across all thirteen IDEA disability categories, the department found that American Indian or Alaska Native students, Black or African American pupils, and children identified as Native Hawaiian or Other Pacific Islanders were more likely to receive a special education than either Asian or white students (U.S. Department of Education, 2018). When looking at specific disabilities, American Indian or Alaska Native youngsters were more than four times as likely as Asian or white students to be identified as developmentally delayed. Similarly, African American children were more than twice as likely as Asian or white students to be identified as either emotionally disturbed or intellectually disabled. Native Hawaiian or Other Pacific Islanders were at elevated risk compared to Asian or white students for receiving services across all disability categories. Asian students were found to be disproportionally represented in two disability categories (autism and hearing impairment) while their white counterparts were more likely than students in other racial/ethnic groups to receive a special education due to autism, deaf-blindness, multiple disabilities, other health impairment, and traumatic brain injury.

The entire issue of representational discrepancies is subject to debate and controversy. Harry (1992), for instance, does not believe that placement rates in special education programs for American Indian or Alaska Native and Hispanic students are suggestive of overrepresentation when examined nationally. At the individual state and local levels, however, a different picture emerges. Benner (1998), Harry, and Morgan et al., (2017) argue that placement statistics must be examined cautiously and kept in perspective. In the opinion of these scholars, the larger the enrollment of pupils from minority groups within a school district, the greater their representation in special education classrooms. This is to be expected. Furthermore, the larger the education program, the greater the likelihood of disproportionate representation. Harry sees this phenomenon as a classic “chicken-and-egg” question. “While large numbers of minority children may lead to a perceived need for more special education programs, it

may also be that the greater availability of programs encourages increased placement of minority children" (Harry, 1992, p. 66).

These precautionary observations notwithstanding, the misclassification and/or inappropriate placement of students from minority groups in special education programs frequently leads to stigmatization and lower expectations. This is especially true when a pupil is removed from the general education setting and consequently denied access to the general education curriculum, which often results in limited postsecondary educational and employment opportunities. In some school systems, the disproportionate representation of these students also results in significant racial separation.

Factors Contributing to Over- and Underrepresentation

A myriad of explanations have been put forth to explain the problem of over- and underrepresentation of culturally diverse students in some categories of special education. No one explanation fully accounts for this situation; the various reasons are complex and frequently intertwined. Scholars (Artiles et al., 2010; Harry, 2014; Harry & Klinger, 2014; Waitoller et al., 2010; Zhang et al., 2014) often see this problem as deeply rooted in the commingling of socioeconomic, sociocultural, and sociopolitical forces.

The overrepresentation of children of color is perhaps best understood as a relationship between family socioeconomic status and disability rather than between disability and minority group status per se (Falusi et al., 2019). Individuals from minority groups typically populate urban centers and tend to be poor. Poverty and ethnicity are inextricably interwoven variables in American society (Artiles et al., 2010; Donovan & Cross, 2002; Morgan et al., 2018). Report after report and survey after survey routinely indicate an overrepresentation of minority groups living in poverty. According to the Children's Defense Fund (2017), 31 percent of black children, 31 percent of American Indian/Alaska Native children, and 27 percent of Hispanic youngsters are considered poor.

Poverty often means limited access to health care (especially prenatal care), poor nutrition, and adverse living conditions. All of these variables increase the probability of a child being at risk for learning and developmental difficulties. Cultural and language differences only exacerbate the student's vulnerability, increasing the likelihood of educational failure and his or her need for special education services (Gargiulo & Kilgo, 2020).

Key Facts About Children in the United States

- Nearly one in five children in the United States (18%) lives in poverty.
- Of all U.S. children, almost 26 percent (19.9 million) receive food stamps.

- Almost two-thirds of children who are poor (64%) live in a household with a family member who works.
- One in 19 children (more than 3.9 million) was uninsured in 2016.
- Seventy-nine percent of low-income fourth graders in public schools read below grade level, and almost three out of four (76%) achieve below grade level in math.
- Over 9 percent of children in the United States (676,000) are victims of abuse or neglect.

Source: Children's Defense Fund, *The State of America's Children 2017*. Available at www.childrensdefense.org/

The evidence strongly suggests that socioeconomic status rather than ethnicity is one of the primary reasons that students from racially and ethnically diverse populations encounter persistent academic problems in the public schools (Morgan et al., 2018). Poverty, however, is not the only culprit contributing to the disproportionate representation of minorities in some special education programs. Faulty identification procedures, ineffective prereferral strategies, test bias, and inappropriate assessment techniques may also account for some of the overrepresentation. The lack of standardized tests appropriate for use with students who have limited English language skills is another contributing factor (Coutinho & Oswald, 2000; Salvia, Ysseldyke, & Witmer, 2017; Voltz, 1998). As Ford (2012), along with Winzer and Mazurek (1998), points out, although biased and discriminatory assessment instruments do play a role, these factors alone are insufficient to account for the misplacement and disproportionate representation of pupils from minority groups in special education classes. Other relevant variables include teacher bias, different behavioral and academic performance standards for students from minority populations, and incongruity or discrepancy between the child's home culture and school expectations. For example, behaviors considered adaptive in a student's home, such as nonassertiveness and cooperation, may conflict with expectations in the classroom, where independence and competition are valued.

Incongruity may also exist in instructional methodology. Research has demonstrated that children from minority groups learn differently than white youngsters. African American pupils, for example, tend to be **field dependent/sensitive** (relational, global) learners who approach learning

intuitively rather than analytically and logically (Banks, 2016; Ford, 1998). These students perform better in social settings like those found in cooperative learning environments and group work (Gollnick & Chinn, 2017). In contrast, white students and Asian/Pacific Islanders are typically **field independent** (detail-oriented and analytically inclined) learners who thrive in competitive settings where achievement and individual accomplishment are prized.

field dependent/sensitive Students who approach learning intuitively rather than analytically and logically. These students tend to find success in cooperative learning situations and group work.

field independent Students who are detail oriented and analytically inclined. These students thrive in competitive settings where achievement and individual accomplishment are prized.

White teachers, as a whole, are typically field independent, whereas educators from minority populations are more likely to be field dependent. The lack of congruency between the cognitive style of many culturally diverse students and that of their teachers is another possible reason for disproportionate representation. Teachers often perceive pupils with cognitive styles different from their own in negative ways. This, of course, exacerbates the student's learning problems. This incongruity frequently causes teachers to overlook a youngster's strengths and abilities and increases the likelihood of a referral for special education services. By the same token, a teacher may fail to recognize the attributes of the brightest pupils and thus be less likely to refer them to programs for students with special gifts and talents.

The reasons for the underrepresentation of certain groups in programs for the gifted and talented are as varied as the explanations for overrepresentation in other programs. Benner (1998) suggests that relevant factors include the politics of race and social class, attitudinal bias, and pressure from peers not to excel academically. Ford (1998, 2012) cites problems related to screening and identification, low teacher expectations

and negative perceptions of minority pupils, and a lack of teacher training in the area of gifted education.

Consequences of Disproportionate Representation

The over- and underenrollment of racial and ethnic minorities in some special education programs often leads to unequal educational opportunities. In many instances, removal from the general education classroom and assignment to a special education classroom results in an inferior and ineffective educational experience for these children (Donovan & Cross, 2002; Harry & Klinger, 2007; Jasper & Bouck, 2013). The educational experiences of racially, ethnically, and culturally diverse pupils often put them at risk for underachievement and dropping out of school. In comparison to their white peers, students from ethnically and racially diverse backgrounds drop out of school at a much higher rate. In the 2016 school year, the dropout rate for Hispanic youth was 8.6 percent in comparison to 5.2 percent for white pupils. About 6 percent (6.2%) of African American students leave school before completing their education (National Center for Education Statistics, 2018). Adolescents who fail to graduate are more likely to be unemployed and constitute a disproportionate percentage of the incarcerated population (Amos, 2008; Hanson & Stipek, 2014; Jasper & Bouck, 2013).

The disproportionately high representation of racial and ethnic minorities as well as culturally and linguistically diverse students in some special education classrooms is a problem that has plagued educators for more than forty years. Unfortunately, the debate over disproportionate representation, inappropriate placement, and misclassification of minority pupils is far from being resolved. However, advocates, policy makers, researchers, educators, and parents have moved beyond the mere condemnation of this long-standing and complex problem to seek solutions. Yet solutions to the issue of greater educational opportunity and quality of education remain elusive. A multifaceted, broad-based attack is necessary. Attention needs to be focused on the identification and referral process, assessment bias, instructional factors, and teacher attitudes, as well as environmental factors impinging on the student and the interrelationships among these variables.

Issues in Assessing Students From Culturally and Linguistically Diverse Groups

While the number of pupils from culturally and linguistically diverse backgrounds continues to grow, the percentage of students who are white is decreasing (Banks & Banks, 2016; National Center for Education Statistics, 2017). As a result, teachers can expect to encounter an especially challenging and difficult task—accurately assessing children from diverse cultures for disabilities. The appropriate assessment of all students has been a long-standing concern among special educators, but it is an especially critical issue for youngsters from minority populations. Assessment is the primary vehicle through which access to services is determined and progress is evaluated, using a variety of formal and informal means. We consider assessment to be a dynamic, multifaceted, multipurpose decision-making process whose primary goal is to evaluate the academic and behavioral progress of a student. Table 3.2 identifies some of the outcomes of this process for children from diverse cultural backgrounds.

Table 3.2 Assessment Outcomes for Culturally and Linguistically Diverse Students

Table 3.2 Assessment Outcomes for Culturally and Linguistically Diverse Students

• An accurate appraisal of a child's level and mode of functioning within the context of the child's cultural experiences
• A focus on a child's strengths and abilities as a basis for the development of new skills
• Identification of a child's specific educational needs, including both first- and second-language acquisition

• Literacy and basic-level skills evaluation, especially for students who lack educational experiences
• Identification of emotional difficulties
• Generation of data that may be used for placement decisions and the formulation of an individualized education program, if necessary

Source: M. Winzer and K. Mazurek, *Special Education in Multicultural Contexts* (Upper Saddle River, NJ: Prentice Hall, 1998), pp. 177–178.

Assessment of students from culturally and linguistically diverse backgrounds is often controversial as well as problematic. Because of the inherent difficulties, assessment of these learners has been characterized as "random chaos" (Figueroa, 1989). The absence of best practice guidelines for evaluating language minority and culturally diverse pupils results in a complicated and confusing assignment for teachers and other service providers.

Inappropriate assessment measures and evaluation procedures are thought to be one of the primary reasons for the disproportionate representation of culturally and linguistically diverse students in various special education programs. Concerns focus mainly on the use of standardized testing with this population, especially standardized tests of intelligence. Recall from Chapter 2 that the *Larry P.* and *Diana* lawsuits centered on claims that IQ tests were inherently unfair to students from minority groups and thus resulted in the misidentification and inaccurate labeling of these pupils, resulting in an inappropriate education.

> Because of bias, test scores may be suspect and may not reflect an accurate appraisal of a child's disability.

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Standardized testing has frequently been criticized for its failure to consider the cultural and experiential background of culturally and linguistically diverse students. A disregard for the life experiences of these students results in an unfair evaluation and a depressed portrayal of their ability. Remember, not all children approach a testing situation with homogeneous backgrounds or a reservoir of similar life experiences. “A student who has no experience with an item presented on a test or has experienced it differently is apt to answer the question incorrectly” (Council for Exceptional Children, 1997, p. 9). For instance, a 10-year-old from Hawaii, a state where there are no snakes, may have difficulty answering a question about rattlesnakes, whereas a youngster from New Mexico is very likely to be familiar with these creatures. Likewise, an adolescent from rural Alabama who is asked about ice fishing is much less likely to answer the question correctly than his cousin from northern Wisconsin. Gollnick and Chinn (2017) believe that the use of standardized tests with children from minority groups measures only their degree of cultural assimilation, not their intelligence.

Assessment Challenges

There are several roadblocks to the goal of achieving meaningful and valid assessments of students who are culturally and linguistically diverse. Foremost is the lack of measurement tools that provide an accurate assessment of these students' abilities. Many standardized tests are simply not available in languages other than English or in appropriate dialects. Coupled with this problem is the issue of bias in the assessment process. All tests are biased to some degree; it is an unavoidable artifact of psychometric evaluation. Yet some of these unwanted influences are of greater concern than others. As a result of bias, test scores are frequently rendered suspect and may not reflect an accurate appraisal of the student's ability or skill. Miller, Linn, and Gronlund (2013) note that bias may involve extrinsic variables, such as the child's response style or the value attached to competitive behavior in the pupil's culture. Intrinsic bias factors are difficulties with the instruments themselves, such as culturally bound test items (recall our rattlesnake example) or normative sampling issues. Bias can also come from several other sources, some of which are external to the child and others internal, such as issues of test validity and reliability when tests are translated; a lack of test-taking skills such as performing under time constraints, motivation, and appropriate response selection strategies; and other issues in addition to the obvious concern of linguistic bias when the student's primary language is not English. Individually and collectively, these sources of bias often result in incorrect assumptions about a student's abilities and may lead, in turn, to an inappropriate educational placement.

Assessment Safeguards

Professionals are fully aware of the importance of obtaining an accurate profile of an individual's strengths and needs. To accomplish this goal and to minimize potential for abuses in the assessment process, PL 94–142 and its subsequent amendments contain several procedural safeguards. Realizing that nonbiased evaluations are crucial to special education, the framers of IDEA mandated **nondiscriminatory testing**. School districts are required to adopt

nondiscriminatory testing Federal mandate that assessments be conducted in a culturally responsive fashion.

> procedures to assure that testing and evaluation materials and procedures utilized for the evaluation and placement of children with disabilities will be selected and administered so as not to be racially or culturally discriminatory. Such materials or procedures shall be provided and administered in the child's native language or mode of communication, unless it is clearly not feasible to do so, and no single procedure shall be the sole criterion for determining an appropriate educational program for a child. (20 U.S.C. § 1412 [5] [C])

In addition, students are to be assessed by trained personnel who are part of a multidisciplinary team that is responsible for the evaluation. Written communications with the pupil's parents are to be provided in the parents' native language.

Assessment Innovations

Professionals have long recognized that bias is a very real threat to the assessment process, especially for persons from culturally and linguistically diverse groups. Concern about this problem has resulted in efforts at minimizing test bias. Although a completely nonbiased or culture-fair assessment is unlikely, initial attempts at reducing bias focused on the instruments themselves. Many tests were revised in an effort to reduce the number of culturally specific test items (content bias) and the reliance on culturally specific language. Tests were also renormed, or restandardized, to reflect the growing diversity of American schoolchildren. Even the testing environment and the race of the examiner and his or her interactions with the student have come under scrutiny.

The primary purpose of these modifications has been to obtain a more accurate picture of a student's abilities, especially for pupils from culturally and linguistically diverse populations. The search for solutions to the problem of test bias has resulted in the development of pluralistic assessment techniques that are meant to be sensitive to the cultural and linguistic characteristics of children from minority groups. One example of this effort is the second edition, normative update of the Kaufman Assessment Battery for Children (KABC-II NU) designed by Kaufman and Kaufman (2018).

The KABC-II NU is used to assess children between 3 and 18 years of age. This instrument was normed on groups of white, Hispanic, African American, Native American, and Asian American children in addition to a population of individuals with disabilities. The KABC-II NU minimizes a student's verbal skills and abilities, thus enhancing its usefulness with children with limited proficiency in English. A Spanish version is also available.

Concern about test bias has also resulted in an expanded understanding of the concept of intelligence. IQ tests have traditionally looked at intelligence in a somewhat narrow and restricted fashion, limiting the performance of

many students. For instance, success in the classroom often depends on linguistic intelligence, an area in which many students from culturally and linguistically diverse backgrounds are deficient. Gardner (1983/2011, 1993, 2006), however, argues for the concept of **multiple intelligences**. According to his theory, problem solving involves eight different, though somewhat related and interactive, intelligences:

> **multiple intelligences** An alternative perspective on intelligence suggesting that there are many different kinds of intelligence.

- Bodily/kinesthetic
- Interpersonal
- Intrapersonal
- Logical/mathematical
- Musical/rhythmic
- Naturalist
- Verbal/linguistic
- Visual/spatial

His ideas have gained widespread acceptance among practitioners but, unfortunately, have received little attention from publishers of standardized tests (de Valenzuela & Baca, 2004). We believe that Gardner's theory has considerable merit. As educators, we need to stop thinking about how smart a student is and start asking, "*How* is the child smart?"

A meaningful education program must incorporate the individual's language and culture.

Getty Images/Melanie Stetson Freeman

Contemporary Assessment Strategies

Many school districts are searching for better ways of assessing the growing population of students who are culturally and linguistically diverse. One particularly promising practice is the movement toward more authentic, performance-based assessment strategies such as **portfolio assessment** (Friend & Bursuck, 2019). This innovation could possibly help in resolving the problem of the over- and underrepresentation of language and ethnic minorities in some special education programs. This alternate assessment model is a relatively new idea for educators, although architects and graphic artists have been demonstrating their skills and competencies via work products for years.

portfolio assessment A type of authentic assessment; samples of different work products gathered over time and across curriculum areas are evaluated.

Portfolio assessment is uniquely intriguing because it emphasizes the instructional environment and focuses on student performance and the outcomes of learning (McLoughlin, Lewis, & Kritikos, 2018). Unlike infrequent or onetime standardized testing, performance-based assessment relies on the pupil's learning experiences and evaluates meaningful, real-world tasks using multiple performance indicators such as writing samples, speeches, artwork, videotapes, and work samples gathered over time and collected in a portfolio. Authentic assessments are relevant and culturally responsive assessments (Gargiulo & Metcalf, 2017).

Portfolios are able to document, in a tangible way, a student's developmental progress. They can pinpoint areas of strength and weakness, thus facilitating instructional intervention. It is our opinion that portfolio assessment has great potential for meeting the needs of students who are culturally and linguistically diverse, especially those with disabilities. Information gleaned from portfolios typically results in more numerous, more specific, and more detailed recommendations and judgments about a

child than does information derived from traditional, standardized testing (Miller et al., 2013).

Portfolio assessment, of course, is not the complete solution to eliminating bias in the assessment of culturally and linguistically diverse children. Several questions and concerns about this performance-based measure remain unanswered. Does portfolio assessment result in a fairer and more accurate portrayal of students from minority groups? Do portfolio data generate decisions about these students that differ from those formulated around the results of traditional testing? What is the basis for our standards or benchmarks? Do teachers use individual standards, or are comparisons based on districtwide, statewide, or even national performance indicators? The answers to these and other questions await further research evidence.

We believe that portfolio assessment should be an integral component of the assessment process. It represents an exciting alternative to assessing learning and the funds of student knowledge.

Assessment Recommendations

Accurately assessing students from culturally and linguistically diverse backgrounds presents many challenges for professionals. Issues of language, test bias, and other such matters are of real concern because they affect assessment results, which in turn affect educational decision making. Completely fair and nonbiased assessments may not be possible, but professionals can at least minimize those variables that may influence performance outcomes. The recommendations in the accompanying Strategies for Effective Teaching and Learning feature represent attempts at achieving authentic data and ensuring fairer, more accurate appraisals of culturally and linguistically diverse pupils and those with emerging English language skills.

Strategies for Effective Teaching and Learning
Recommendations for Assessing Culturally and Linguistically Diverse Pupils

- Assessment of an individual's language competency in both English and his or her native language should be completed before administering other tests.
- In order to be eligible for a special education, a student must exhibit a disability when evaluated in his or her native language.
- Schools should incorporate ecological assessments that include not only multiple evaluation tools familiar to the examiner but also information gathered from the student's teachers, the student's parents, and the student.
- Evaluators should use evaluation techniques that are as unbiased as possible. For example, a bilingual professional, not an interpreter, should administer the test.
- If a bilingual professional is unavailable, an interpreter may be used if he or she is first trained in assessment principles and terminology.
- Parents and other stakeholders should be involved when developing alternate assessments.

Educational Programming for Students With Exceptionalities Who Are Culturally and Linguistically Diverse

Providing specific instructional strategies and tactics for students with disabilities who are culturally and linguistically diverse (and even pupils who are nondisabled) is an arduous, if not impossible, task. We can, however, offer some general suggestions for enhancing instructional effectiveness. Earlier we noted that effective teachers are sensitive to the cultural heritage of each student and attempt to provide educational experiences that are culturally relevant and appropriate. This is critically important. Our instructional practices must be culturally affirming, sensitive, and responsive. The pupil's cultural background should be seen as an instructional resource (Ford, 2012; Garcia & Ortiz, 2006; Shealey & Callins, 2007). A meaningful educational program must incorporate the individual's language and culture. The degree to which this integration occurs is a valid gauge of academic success.

A pupil's life experiences can be the building blocks or foundation for developing a curriculum that is authentic and culturally relevant. Programs and services for children who are culturally and linguistically diverse and exceptional should be crafted around the principles and purposes of multicultural education in an effort to create a supportive climate for learning (Gollnick & Chinn, 2017). Additionally, Hoover and Collier (2004) suggest that the instructional strategies identified in the individualized education program (IEP) "exhibit culturally appropriate cues and reinforcements as well as culturally appropriate motivation and relevance" (p. 285). While attention to instructional strategies is crucial, effective programs for culturally and linguistically diverse students with exceptionalities must also consider the content (needed academic skills and knowledge), the instructional environment, and student behaviors, and how these elements reciprocally interact and are influenced by the pupil's linguistic and cultural heritage (Hoover & Patton, 2005; Voltz, Sims,

Nelson, & Bivens, 2005). Meaningful IEPs for pupils with disabilities who also exhibit cultural and/or linguistic diversity should reflect goals and instructional strategies that are appropriate to the student's disability while also reflecting his or her language status.

Attainment of IEP goals depends, in part, on establishing a supportive learning environment. One way of enhancing the context in which teaching and learning occur is through the careful selection and evaluation of instructional materials. Materials that reflect the sociocultural, linguistic, and experiential backgrounds of the students increase the likelihood that children will respond to them in a positive manner (Gollnick & Chinn, 2017). The accompanying Strategies for Effective Teaching and Learning feature presents several guidelines that educators should consider when evaluating materials for their classroom.

Effectively instructing students with exceptionalities who are also culturally and linguistically diverse requires that teachers provide experiences that are culturally appropriate and pertinent. Instructional success with children from diverse populations depends largely on the teacher's ability to construct meaningful pedagogical bridges that cross over different cultural systems (Garcia & Ortiz, 2006; Meyer et al., 2016). "When instruction and learning are compatible with a child's culture and when minority students' language and culture are incorporated into the school program, more effective learning takes place" (Winzer & Mazurek, 1998, p. vii).

Strategies for Effective Teaching and Learning
Guidelines for Selecting and Evaluating Instructional Materials

- Are the perspectives and contributions of people from diverse cultural and linguistic groups—both men and women, as well as people with disabilities—included in the curriculum?
- Are there activities in the curriculum that will assist students in analyzing the various forms of the mass media for ethnocentrism, sexism, "handicapism," and stereotyping?
- Are men and women, diverse cultural/racial groups, and people with varying abilities shown in both active and passive roles?

- Are men and women, diverse cultural/racial groups, and people with disabilities shown in positions of power (i.e., the materials do not rely on the mainstream culture's character to achieve goals)?
- Do the materials identify strengths possessed by so-called underachieving diverse populations? Do they diminish the attention given to deficits, to reinforce positive behaviors that are desired and valued?
- Are members of diverse racial/cultural groups, men and women, and people with disabilities shown engaged in a broad range of social and professional activities?
- Are members of a particular culture or group depicted as having a range of physical features (for example, hair color, hair texture, variations in facial characteristics and body build)?
- Do the materials represent historical events from the perspectives of the various groups involved or solely from the male, middle-class, and/or Western European perspective?
- Are the materials free of ethnocentric or sexist language patterns that may make implications about persons or groups based solely on their culture, race, gender, or disability?
- Will students from different ethnic and cultural backgrounds find the materials personally meaningful to their life experiences?
- Are a wide variety of culturally different examples, situations, scenarios, and anecdotes used throughout the curriculum design to illustrate major intellectual concepts and principles?
- Are culturally diverse content, examples, and experiences comparable in kind, significance, magnitude, and function to those selected from mainstream culture?

Source: S. Garcia and D. Malkin, "Toward Defining Programs and Services for Culturally and Linguistically Diverse Learners in Special Education," *Teaching Exceptional Children, 26*(1), 1993, p. 55. Reprinted with permission.

Chapter in Review

Cultural Diversity: The Changing Face of a Nation (Learning Objective 3.1)

- Although the population of culturally and linguistically diverse students continues to grow, the diversity of the teaching workforce has failed to keep pace. About 80 percent of U.S. teachers are white, and it is projected that the teaching profession will become increasingly homogeneous over the next few years.
- The task of assimilating or "Americanizing" the children of immigrants was metaphorically described as a melting pot, whereby the various languages, beliefs, and customs of immigrants were melted away and replaced with a common American culture.
- In the latter part of the twentieth century, interest in cultural pluralism and multicultural education was sparked. U.S. society is now characterized metaphorically as a floral bouquet or patchwork quilt; cultural and ethnic differences are valued and respected.

Multicultural Education, Bilingual Education, and Student Diversity (Learning Objectives 3.2 and 3.3)

- Multicultural education addresses issues of race, language, social class, and culture as well as disability and gender.
- Bilingual education is an educational strategy whereby students whose first language is not English are instructed primarily through their native language while developing competency and proficiency in English.
- *English learners (ELs)* is a term used to describe individuals with reduced proficiency in reading, writing, or speaking English.
- Bilingual special education services embrace the use of the pupil's primary language and culture coupled with an individually tailored program of special instruction.

Disproportionate Representation of Minority Students in Special Education Programs (Learning Objective 3.4)

- Historically, greater numbers of children from minority groups have been placed in special education classrooms than would be anticipated based on their proportion of the school population. This situation is commonly referred to as overrepresentation. Underrepresentation in certain programs, or fewer students than one would anticipate based on their numbers in the school population, is also a problem.
- The overrepresentation of children of color is perhaps best understood as a relationship between socioeconomic status and disability rather than between minority group membership and disability.
- Test bias, teacher expectations and bias, and incongruity in instructional methodology and cognitive styles may also account for this phenomenon.

Issues in Assessing Students From Culturally and Linguistically Diverse Groups (Learning Objective 3.5)

- Some of the barriers to achieving meaningful and valid assessments of students from culturally and linguistically diverse backgrounds are the lack of appropriate measurement tools and bias in the assessment process.
- Federal law requires that professionals use nondiscriminatory testing practices when evaluating pupils for possible special education placement.
- Some professionals have expanded their understanding of the notion of intelligence and argue for the concept of multiple intelligences.
- Another attempt at meaningful assessment of students from culturally and linguistically diverse backgrounds is a movement toward authentic, performance-based assessment techniques, such as portfolio assessment.

Educational Programming for Students With Exceptionalities Who Are Culturally and Linguistically Diverse (Learning Objective 3.6)

- The child's cultural and linguistic heritage must be reflected in his or her individualized education program (IEP) if instructional strategies are to be effective. The instructional materials should also mirror the sociocultural, linguistic, and experiential backgrounds of the students.

Study Questions

1. What do the terms *culture* and *cultural diversity* mean to you?
2. At one time, the United States was described as a melting pot. Why? Metaphorically speaking, American society is now characterized as a floral bouquet or patchwork quilt. What factors contributed to this change in thinking?
3. Define the following terms: *cultural pluralism, multicultural education*, and *bilingual education*.
4. Why is bilingual education a controversial topic?
5. Compare and contrast the various instructional models used with students who are bilingual.
6. Explain why pupils from minority groups experience disproportionate representation in some special education programs.
7. What are the consequences of disproportionate representation?
8. Why is the assessment of culturally and linguistically diverse students perceived to be problematic? How might these difficulties be corrected?
9. Define *portfolio assessment*. Identify the advantages of this strategy for evaluating the performance of children who are culturally and linguistically diverse.

Key Terms

melting pot, 77
cultural pluralism, 78
culture, 78
multiculturalism, 78
multicultural education, 79
bilingual education, 79
ethnocentrism, 80
macroculture, 80
microcultures, 80
English learners (ELs), 81
bilingual special education, 82
overrepresentation, 84
underrepresentation, 84
field dependent/sensitive, 88
field independent, 88
nondiscriminatory testing, 90
multiple intelligences, 91
portfolio assessment, 92

Learning Activities

1. Talk to a school psychologist, an educational diagnostician, or another assessment specialist about strategies and procedures used when evaluating students from a culturally or linguistically diverse background. What types of modifications, if any, does he or she use? Does he or she have any concerns about the validity of the assessment process? What is his or her opinion about alternate assessments, such as portfolios?
2. Visit several different schools in your area. Interview administrators or teachers about services available for pupils from culturally and linguistically diverse groups. Is there a problem of over- and underrepresentation in special education classes? What types of modifications are available to meet the needs of these pupils? How are parents and other family members involved in the school? Is multicultural education reflected in the school environment?
3. Attend various functions sponsored by ethnic groups in your community. Activities may include musical programs, art exhibitions, festivals, religious celebrations, school functions, and other ceremonies. How did you feel about participating in

these activities? What did you learn as a result of your involvement? Were your personal viewpoints and stereotypes challenged as a result of this experience?

Reflecting on Standards The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Learner Development and Individual Learning Differences (CEC Initial Preparation Standard 1.1)

Reflect on your own culture and how you interact with people of other cultures. In what ways would you share your cultural background with your students? What strategies would you use to help your students appreciate their own cultural background and value the cultural diversity of others?

Focus on Professional Learning and Ethical Practice (CEC Initial Preparation Standard 6.3)

Reflect on what personal cultural biases you have. How might these biases affect your teaching? If possible, find an assessment to help you understand what hidden cultural biases you might have. Talk to colleagues, family, and friends to try to understand what biases you have that might hinder your teaching.

Student Study Site

Sharpen your skills with SAGE edge at **edge.sagepub.com/gargiulo7e**. SAGE edge for students provides a personalized approach to help you accomplish your coursework goals in an easy-to-use learning environment.

Answer Key to Cultural and Linguistic Diversity Quiz on p. 76

1. True
2. True
3. False
4. False
5. False
6. False
7. True
8. True
9. False
10. True
11. True
12. True

4 Parents, Families, and Exceptionality

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Learning Objectives

After reading Chapter 4, you should be able to:

4.1 **Discuss** the evolution of parent–professional partnerships.
4.2 **Describe** the four key elements of a family systems model for understanding the impact of a disability on the family constellation.
4.3 **Identify** the emotional responses associated with the stages of parents' reaction to their child's disability.
4.4 **Summarize** the effects of an individual with a disability on family members.
4.5 **Explain** how a family's cultural and linguistic background influences its reaction to a disability.
4.6 **Outline** ways for establishing effective partnerships with families with children who have a disability.

The family is our most fundamental social institution, the cornerstone of our society. It is also the primary arena in which an individual, whether disabled or not, is socialized, educated, and exposed to the beliefs and values of his or her culture. This crucial responsibility is generally assumed by the youngster's parents, who serve as principal caregivers and the child's first teachers. In this chapter, when we refer to a parent, we mean any adult who fulfills these essential caregiving duties and responsibilities for a particular child.

Being a parent of a child with a disability is not a role most parents willingly choose for themselves. Generally speaking, few individuals ever ask to be a parent of a person with special needs, and most parents are never fully prepared for this tremendous responsibility. Parenting a child with a disability can be a difficult, demanding, and confusing job, yet we believe it is a role that can also be filled with joy, triumphs, and satisfaction.

Although exceptionality can certainly change the ecology of the family and the interactions that occur within it, the role of the family, and of the parents in particular, remains essentially the same. Stated another way, although each family is unique, in the majority of instances professionals are primarily working with just another family—not a family that is

dysfunctional. We believe it is important for teachers and other service providers to focus on the strengths and the resources of the family and not concentrate solely on the challenges and stresses that are sometimes experienced by families with a child who has a disability.

The purpose of this chapter is to more fully explore the issue of parent–professional partnerships and to examine the interactive relationship of exceptionality and its impact on the family. We have adopted a family systems approach to guide us on our journey. We will also explore the topic of cultural and linguistic diversity as it pertains to families and exceptionality. We conclude with suggestions for facilitating parent–professional partnerships.

Parent–Professional Relationships: Changing Roles

Many teachers believe that parental involvement is crucial to the success of the educational experience, especially for children with disabilities. Parents are a valuable resource for professionals; in comparison to teachers and other service providers, parents typically have a greater investment in their children, not only of time but also of emotion. Generally, no one else will know the child as well as the parents do; their experiences predate and exceed those of the professional. Yet only recently have professionals realized the value of parents and sought to establish collaborative relationships with them.

The history of parent–professional relationships is generally one of gloomy and counterproductive activities on the part of professionals (Gallagher, Beckman, & Cross, 1983). Today, parents are seen as collaborators and equal partners with professionals, but this was not always the case. The contemporary role of parents and families in alliance with professionals has been an evolving one. Turnbull, Turnbull, Erwin, and Soodak (2006) have outlined the major roles that parents and families have played over time (see Figure 4.1). They characterize these shifting roles and responsibilities as a pendulum swinging back and forth across several dimensions:

- From regarding parents and other family members as part of the child's problem to regarding them as partners in addressing the challenges of exceptionality
- From insisting on passive roles for parents to expecting active partnership roles for families
- From regarding families as consisting only of a mother–child dyad to recognizing the preferences and needs of all members of a family
- From responding to family needs in a general way to individualizing for the family as a whole and for each member of the family (Turnbull et al., 2006, p. 110)

Not only have the roles of parents and families shifted, but relationships between parents and professionals have also changed over the years. We believe it is possible to describe three distinct periods in the history of parent–professional relationships:

1. Antagonistic and adversarial relationships
2. Working partnerships
3. Parent empowerment and family-centered relationships

Antagonistic and Adversarial Relationships

The **eugenics movement** represents an early and dismal period in the history of parent–professional relationships. This campaign sought to improve the quality of humankind through selective breeding. It resulted in laws forbidding marriage between individuals with intellectual disability and led to calls for their sterilization. The goal of the eugenicists was to reduce the number of "unfit" parents and thus, according to their faulty logic, the number of inferior offspring (Turnbull, Turnbull, Erwin, Soodak, & Shogren, 2015).

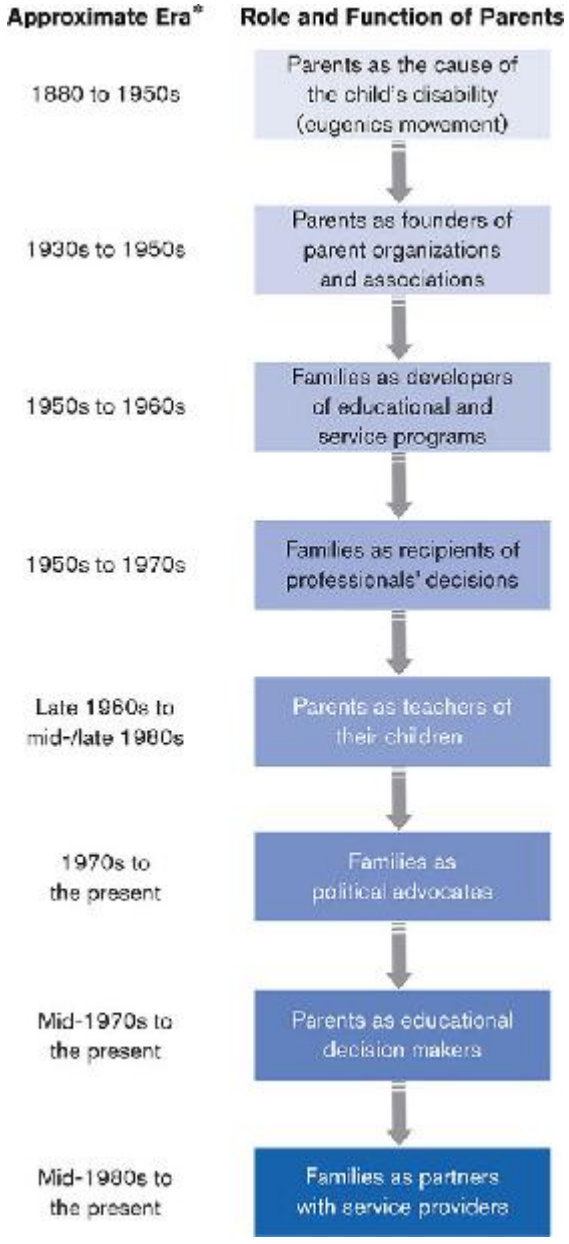
> **eugenics movement** A campaign that sought to improve the quality of humankind through carefully controlled selective breeding.

Although the eugenics movement gradually lost influence by the middle of the twentieth century, it provided the foundation for later thinking that parents were the cause of their child's disability. Perhaps nowhere else was this belief more prominent than in the work of Bettelheim (1950, 1967), who saw parents, especially mothers, as the primary reason that their son or daughter was autistic. Bettelheim coined the term *refrigerator moms*, viewing these mothers as cold, detached, uncaring, and rigid. He even went so far as to advocate that these youngsters be taken away from their natural parents and institutionalized so that they could receive loving and competent care.

This time period (mid-1940s to early 1970s) was characterized by professional dominance. Professionals frequently adopted an attitude of superiority and were clearly seen as being in control. They were the exclusive source of knowledge and expertise. Doctors, teachers, psychologists, and other service providers automatically assumed that the parents would defer to their judgment and passively submit to their recommendations, advice, and suggestions. It is easy to see how this climate laid the groundwork for less than positive relationships. As a result of their treatment by professionals, parents often became angry, confused,

frustrated, and distrustful. This “mishandling” by professionals (Roos, 1978) led many parents to become aggressive activists and advocates for change.

Figure 4.1 A Timeline of the Changing Roles of Parents of Children With Disabilities


Approximate Era*
Role and Function of Parents
1880 to 1950s
Parents as the cause of the child's disability (eugenics movement)
1930s to 1950s
Parents as founders of parent organizations and associations
1950s to 1960s
Families as developers of educational and service programs
1950s to 1970s
Families as recipients of professionals' decisions
Late 1960s to mid-/late 1980s
Parents as teachers of their children
1970s to the present
Families as political advocates
Mid-1970s to the present
Parents as educational decision makers
Mid-1980s to the present
Families as partners with service providers

*Eras do not represent discrete time periods; roles frequently overlap.

Source: Adapted from A. Turnbull, R. Turnbull, E. Erwin, L. Soodak, & K. Shogren, *Families, Professionals, and Exceptionality*, 6th ed. (Upper Saddle River, NJ: Pearson Education, 2011), pp. 97–107.

A. Turnbull, R. Turnbull, E. Erwin, L. Soodak, & K. Shogren, *Families, Professionals, and Exceptionality*, 7th ed. (Upper Saddle River, NJ: Pearson Education, 2015), pp. 115–125.

In all fairness, however, part of the reason for less than positive relationships may reside with the parents. In some situations, Gargiulo (1985) writes,

> part of the blame for less than positive interaction falls squarely on the shoulders of the parents. In some instances, parents have condemned the professional for not recognizing the disability sooner and occasionally have even accused the professional of causing the handicap [disability]. Some parents have inhibited the growth of the relationship with professionals by withdrawing. They have judged professionals to be insensitive, offensive, and incapable of understanding their situation because professionals themselves are rarely parents of an exceptional person. (p. 6)

Consequently, the actions and attitudes of both professionals and parents resulted in establishing barriers and an unfavorable atmosphere for working together.

Working Partnerships

For the better part of the twentieth century, the families of children with disabilities had to contend with schools, and on occasion with professionals, that were at best apathetic to their needs and the needs of their children (Berry & Hardman, 1998). This situation dramatically improved with the enactment of PL 94–142 in 1975. The Individuals with Disabilities Education Act, or IDEA, as it is presently known, requires that parents participate fully in education decisions affecting their son or daughter. Today, parents no longer speak of privileges; instead, they talk of rights.

IDEA ushered in a new era of parent–professional relationships. The status of parents has changed from passive recipients of services and advice to active participants—educational decision makers. These new roles and responsibilities for parents and families include active involvement in the identification and assessment process, program planning, and evaluation, as well as input on placement decisions. These roles are coupled with extensive due process and procedural safeguards. It is easy to see how PL 94–142 has come to be designated the “Parents’ Law” (Gargiulo & Kilgo, 2020).

Table 4.1 illustrates how the attitudes and services of professionals have evolved over the past few decades. Notice the contemporary emphasis on families instead of just parents across many of the eras.

The building of positive school–home partnerships requires that the family be viewed as a key partner in the education of the student with a disability. Parents are beneficial allies with professionals. Successful school experiences require the involvement of parents. Despite the importance of active and meaningful involvement, however, Turnbull et al. (2015) observe that many parents participate only passively in the educational decision-making process. These noted special educators speculate that some parents may not have the motivation to assume a more active role or may lack the requisite knowledge and skills to become active participants. In the vast number of cases, however, it is a lack of empowerment that limits or

restricts their role as educational decision makers. It is this state of affairs that has led to the third stage of parent–professional interaction: parent empowerment and family-centered services. The current emphasis is on families as collaborators with professionals.

Parent Empowerment and Family-Centered Relationships

The implementation of PL 99–457 and PL 101–476 signaled a change in the status of parent–professional relationships. With these enactments came the idea that families, not parents, should be the focal point of professionals' attention (Ferguson, Hanreddy, & Ferguson, 2014). One of the reasons for this shift was the evolving recognition that partnerships should not be limited exclusively to biological parents but can and should include other immediate and extended family members (Turnbull et al., 2015). Many professionals now operate under the assumption that the family serves as the primary decision maker in regard to setting goals and establishing priorities for the student with a disability. This change, of course, vastly extends the concept of parental involvement and significantly redefines the role of the special educator. Professionals no longer provide suggestions and services *to* families; rather, they work collaboratively *with* families, acting as coordinators and facilitators of service delivery (Blue-Banning, Summers, Frankland, Nelson, & Beegle, 2004; Gargiulo & Metcalf, 2017).

Successful school experiences require the meaningful involvement of parents.

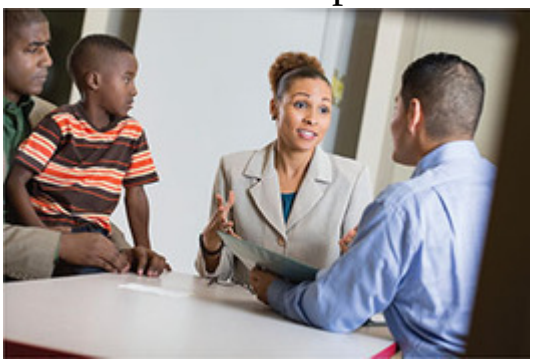


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Table 4.1 Changing Perspectives of Professionals Toward Families With a Child With a Disability

Table 4.1 Changing Perspectives of Professionals Toward Families With a Child With a Disability

Issue	Traditional Attitude	Contemporary Attitude
1. "Vision"	Parents' greatest need (to which professional counseling and advice is geared) is to accept the burden of raising their child and to become realistic about his or her limitations and the fact that disability necessarily results in second-class citizenship.	Families need to be encouraged to dream about what they want for themselves and their son or daughter with a disability, and they need assistance in making those dreams come true. These dreams and future plans should lead to expectations that all members of the family are entitled to full citizenship. Vision replaces despair.
2. Support and assistance	Parents' difficulties in coping with the child are largely psychological or psychiatric in nature, and the proper interventions are psychiatric or psychological counseling.	Families can benefit from one another. One benefit that almost all families need is the emotional resiliency and information that other families have acquired about life with disabilities.
3. Socialization	Mothers need respite to alleviate the stress and	Families need the child with disabilities to have friends and integrated

Issue	Traditional Attitude	Contemporary Attitude
	burden of caring for their child.	recreational opportunities in order to respond to the child's needs for socialization, affection, and identity.
4. Hope for the future	Mothers need clinical information about disability.	Families need information about and inspiration from people with a disability who are successfully integrated into community life.
5. Instructional emphasis	Mothers need training related to skill development and behavior management so they can be "follow-through" teachers for their child and implement home-based lesson plans.	Families need encouragement and ways to ensure that the child has a functional education taught in natural environments. This encouragement and help should assist families to enlist the support of the natural helpers in those environments (e.g., family, friends, store clerks, bus drivers, scout leaders).
6. Social support	Many families are financially unable to meet their child's needs and should seek out-of-home placement.	Many families need new policies to provide, for example, direct subsidies and new tax credits to help meet the financial demands associated with disability in

Issue	Traditional Attitude	Contemporary Attitude
		the home and family setting.

Source: Adapted from A. Gartner, D. Lipsky, and A. Turnbull, *Supporting Families With a Child With a Disability* (Baltimore, MD: Paul H. Brookes, 1991), pp. 202–204.

The contemporary emphasis on building family–professional partnerships implies that families are full and equal partners with professionals. It also strongly suggests a collaborative relationship. Collaboration involves the sharing of information and resources as well as expertise and a commitment to jointly reaching decisions. Implicit within the concept of collaboration is an ethic of mutual respect and shared responsibility. For professionals, collaboration also means that they no longer have power *over* families but rather achieve power *with* families. Families and professionals thus find themselves linked together in a mutually supportive and empowering alliance.

The idea of a collaborative partnership between home and school is in concert with the theorizing of Bronfenbrenner (1977, 1979), who argued that an individual cannot be viewed in isolation but can only be viewed as part of a larger social system. Professionals must have an appreciation of the social context in which the student develops and the interactions that occur among and between the various settings and individuals. Thus, we find that home, school, and community interact reciprocally, and the actions of parents, siblings, grandparents, teachers, and other professionals all influence one another. How a family relates to the other social systems is crucial to the overall functioning of the family. Finally, Bronfenbrenner's ecological thinking provides a foundation for family systems theory, which views the family as a social system. In this interactive system, whatever happens to one member affects the rest. We now turn our attention to examining this contemporary approach to working with families.

A Family Systems Approach

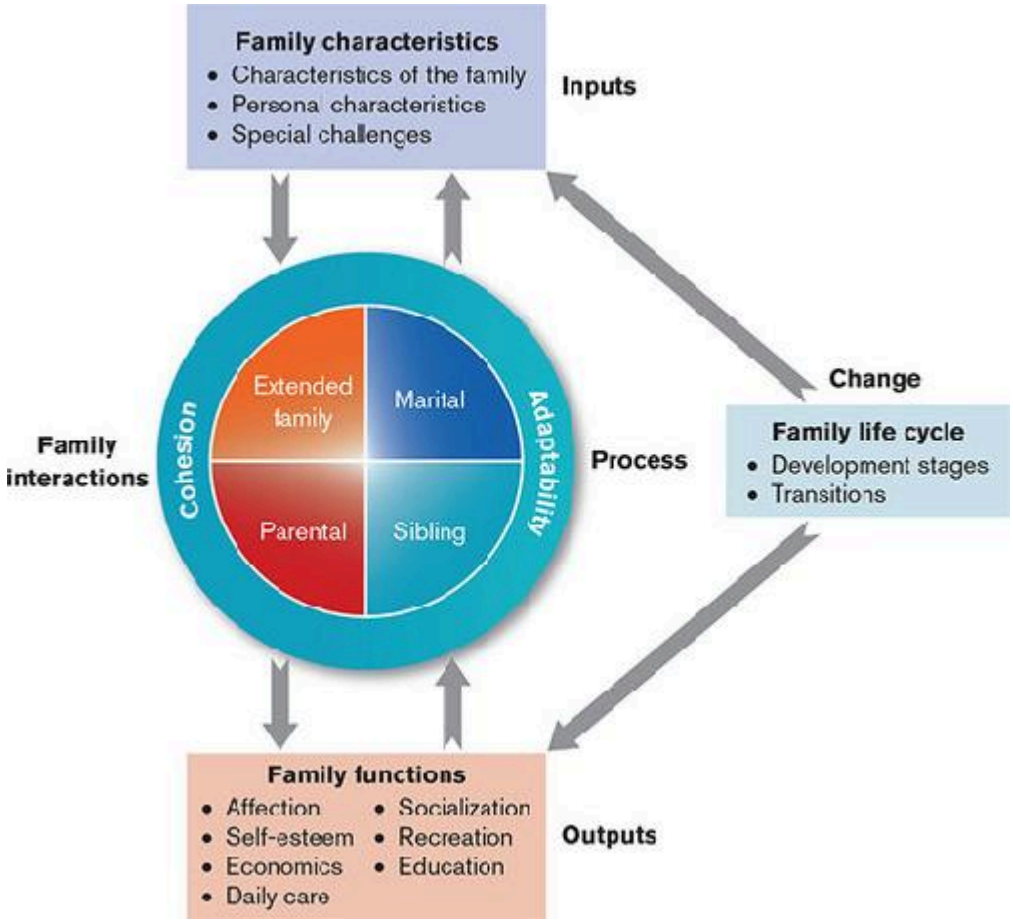
The fundamental belief underlying a **family systems model** is that a family is an interrelated social system with unique characteristics and needs. It operates as an interactive and interdependent unit. Events and experiences that affect a particular family member also affect the other members of the family. Because of this relationship, teachers and other service providers consider the entire family constellation as the appropriate focal point for professionals' attention.

> **family systems model** A model that considers a family as an interrelated social system with unique characteristics and needs.

Turnbull et al. (2015) have incorporated this thinking into a framework for applying family systems concepts to the study of families that have a child with a disability. Their model (see Figure 4.2) contains four key elements, all of which are interrelated:

- Family characteristics
- Family interactions
- Family functions
- Family life cycle

Figure 4.2 A Family Systems Framework



Source: Adapted from A. Turnbull and H. Turnbull, *Families, Professionals, and Exceptionality: A Special Partnership*, 2nd ed. (Columbus, OH: Merrill, 1990), pp. 134–135.

Family characteristics are those features that make the family unique. "Inputs" include family size and form, cultural background, socioeconomic status, and geographic location. Additionally, each member's health status (both physical and mental), each member's individual coping style, and the nature and severity of each member's disability are included as personal characteristics. A final component includes special challenges facing the family, such as poverty, substance abuse, and parents who themselves may have a disability. Collectively, these variables provide each family with its own unique identity, influence interactional patterns among the members, and determine how the family responds to the individual's exceptionality. It is easy to understand how a large family living in poverty in a rural location

might differ in adaptation from an affluent suburban family with an only child who has a disability.

family characteristics One dimension of a family systems model; aspects include family size and form, cultural background, and socioeconomic status, as well as the type and severity of the disability.

A family can be viewed as an interrelated social system, each with its own unique characteristics.

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Family interactions comprise the relationships and interactions among and between the various family subsystems. How members of a particular family interact depends in part on their degree of cohesion and adaptability. These two factors affect the quality of interactions and can be interpreted only in light of the family's cultural heritage.

family interactions One aspect of a family systems model; refers to the relationships and interactions occurring among and between various family subsystems.

Simply defined, **cohesion** refers to the degree of freedom and independence experienced by each member of the family. Cohesion occurs along a continuum, with some families being overly cohesive. In this situation, the development of an individual's autonomy and independence may be impeded. Such families are viewed as being overly protective. Other families may have a low degree of cohesiveness. In this situation, families

are depicted as being underinvolved, and the person with the disability fails to receive needed support. Well-functioning families aim to achieve a balance in cohesiveness.

cohesion Within a family, the degree of freedom and independence experienced by each member.

Adaptability can be defined as the family's ability to change in response to a crisis or stressful event (Olson, 1988). Like cohesiveness, adaptability occurs along a continuum and is influenced by the family's cultural background. When a stressful event occurs, rigid families respond according to prescribed roles and responsibilities. They are unable to adapt to the demands of the new situation. This behavior places the family at risk for becoming isolated and dysfunctional (Seligman & Darling, 2009). For example, the introduction into a family of a youngster with multiple disabilities would very likely require some form of accommodation. Yet in a rigid family, with a clear hierarchy of power, the child care responsibilities would almost always fall on the mother. Such duties, according to the father's perception, are exclusively "women's work"; therefore, he has no obligation to assist. On the other hand, it is impossible to predict how a chaotic family would respond to this situation. Chaotic families are characterized by constant change and instability. There is often no family leader, and the few existing rules are often altered, creating significant confusion (Turnbull et al., 2015). The key for most families is to maintain a balance between the extremes of high and low adaptability.

adaptability The ability of an individual or family to change in response to a crisis or stressful event.

Family functions are the seven interrelated activities listed in Figure 4.2, all of which are necessary to fulfill the individual and collective needs of the family:

family functions Interrelated activities found within a family systems model; functions range from affection to economics to socialization, among other variables.

- Affection—emotional commitments and display of affection
- Self-esteem—personal identity and self-worth, recognition of positive contributions
- Economics—production and utilization of family income
- Daily care—day-to-day survival needs (food, shelter, health care)
- Socialization—developing social skills, establishing interpersonal relationships
- Recreation—leisure time activities for both family and individuals
- Education—involvement in educational activities, career choices

Turnbull et al. (2015) identify these nonprioritized functions as "outputs" and remind us that it is impossible to discuss family functions without regard to the other three main dimensions of their framework. These tasks and activities are common to all families, but they are likely to be affected by the presence of a member with a disability (Berry & Hardman, 1998). The effect may be positive, negative, or neutral.

Individual families will establish their own priorities for each of these functions. In one family, meeting the daily needs of food and shelter is of utmost importance; another family may emphasize recreation and leisure. Berry and Hardman (1998) note that some families may require assistance in several areas, and others in only a few. Also, the amount of help from professionals will vary depending on specific circumstances.

Family life cycle is an important component of the Turnbull et al. (2015) framework. It refers to the developmental changes that occur in most families over time. These changes, though fairly predictable, may alter the structure of the family and in turn affect relationships, functions, and interactions.

> **family life cycle** Developmental changes occurring within a family over time.

The movement from one stage to another and the accompanying adjustment period are characterized as a **transition**. Transitions can be particularly stressful events for families, but especially for families with a member with a disability. For many families, it is a time of challenge and uncertainty as

to what the next stage holds for the family and the individual. For instance, when a toddler transitions from an early intervention program to Head Start or when a young adult leaves high school and secures employment, these events can be times of heightened anxiety and significant stress. Not all families successfully negotiate life cycle changes.

transition A broad term used to describe the movement of an individual from one educational environment to another, from one class to another, or from one phase of life (high school) to another (independent adulthood).

Life cycle functions, according to Seligman and Darling (2009), are highly age related. As a family moves through its life cycle and encounters new situations, its priorities shift. Turnbull et al. (2015) have identified four major life cycle stages and the accompanying issues that the parents and siblings of a child with a disability may encounter along the family's journey. Table 4.2 describes some of the developmental issues that an individual with an exceptionality presents to his or her family during each stage. We caution you, however, that how any particular family responds to a member with a disability is unique.

The Effects of a Child's Disability on Parents and the Family

It is important for teachers and other professionals to realize that the identification of an individual as disabled affects the entire family constellation and produces a wide range of reactions, responses, and feelings. In some cases, the awareness comes shortly after the birth of the baby; in others, it may occur during the preschool years as a result of illness or accident; many times, parents are told that their son or daughter has a disability upon entering school.

The effect on the family of a child with a disability mainly involves perceptions and feelings that are highly subjective and personalized for each family member. How a mother responds will most likely differ from the response of her father-in-law, and an older sibling will very likely have a different point of view. Likewise, exceptionality is frequently interpreted differently by different families, even if the type of disability (such as blindness or intellectual disability) is the same. In some families, having a child with a disability is perceived as a tragedy; in others, it may be viewed as a crisis but one that can be managed; in still others, it is merely one more factor to be considered in a daily struggle to survive.

Parental reaction to the news of a disability typically results in a wide range of emotions.

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Table 4.2 Potential Family Life Cycle Issues

Table 4.2 Potential Family Life Cycle Issues

Stage	Parental Issues	Sibling Issues
Early Childhood (Birth–Age 5)	• Obtaining an accurate diagnosis • Informing siblings and relatives • Locating services • Seeking to find meaning in the exceptionality • Clarifying a personal ideology to guide decisions • Addressing issues of stigma • Identifying positive contributions of exceptionality • Setting great expectations	• Less parental time and energy for sibling needs • Feelings of jealousy over less attention • Fears associated with misunderstandings of exceptionality
School Age (Ages 5–12)	• Establishing routines to carry out family functions • Adjusting emotionally to educational implications • Clarifying issues of mainstreaming (inclusion) vs.	• Division of responsibility for any physical care needs • Oldest female sibling possibly being at risk • Limited family resources for

Stage	Parental Issues	Sibling Issues
	special class placement • Participating in individualized education program (IEP) conferences • Locating community resources • Arranging for extracurricular activities	recreation and leisure • Informing friends and teachers • Possible concern about younger sibling surpassing older • Issues of “mainstreaming” into same school • Need for basic information on exceptionality
Adolescence (Ages 12–21)	• Adjusting emotionally to possible chronicity of exceptionality • Identifying issues of emerging sexuality • Addressing possible peer isolation and rejection • Planning for career/vocational development • Arranging for leisure time activities • Dealing with physical and	• Overidentification with sibling • Greater understanding of differences in people • Influence of exceptionality on career choice • Dealing with possible stigma and embarrassment • Participation in sibling training programs • Opportunity for sibling support

Stage	Parental Issues	Sibling Issues
	emotional changes of puberty • Planning for postsecondary education	groups
Adulthood (Ages 21+)	• Planning for possible need for guardianship • Addressing the need for appropriate adult implications of dependency • Addressing the need for socialization opportunities outside the family for individuals with exceptionality • Initiating career choice or vocational program	• Possible issues of responsibility for financial support • Addressing concerns regarding genetic implications • Introducing new in-laws to exceptionality • Need for information on career/living options • Clarifying role of sibling advocacy • Possible issues of guardianship

Source: Adapted from A. Turnbull and H. Turnbull, *Families, Professionals, and Exceptionality: A Special Partnership*, 2nd ed. (Columbus, OH: Merrill, 1990), pp. 134–135.

Stages of Parental Reaction to Disability

A number of writers in the field describe a **stage theory** approach when characterizing parental reactions to the diagnosis of a disability (Cook, Klein, & Chen, 2020; Friend & Bursuck, 2019; Lerner & Johns, 2015; Zajicek-Farber, 2019). This popular interpretation suggests that some parents pass through a series of reactive stages to the news of their child's disability. Although no two families will respond identically, researchers have identified common transformative stages that many families exhibit as they adjust to a member with a disability (Cook et al., 2020).

> **stage theory** A hypothesized pattern of parents' reaction to the news that their child has a disability.

Of course, it is impossible to predict how families, and parents in particular, will respond to a disability. Most stage theory models are constructed around the premise that families experience a grief or mourning cycle much like the developmental stages of reaction to the death of a loved one (Kubler-Ross, 1969). Some models are more elaborate than others, but most identify three distinct stages or phases of parental reaction. The classic work of Gargiulo (1985) provides a good example. Before examining this model, we should point out that this "grief paradigm" has been criticized as being unduly negative, overly rigid, and lacking in empirical evidence as well as being condescending and patronizing (Blacher, 1984; Grant & Ray, 2019). However, the writings of many parents of children with disabilities eloquently and poignantly attest to the validity of this approach (Hill-Patterson, 2011).

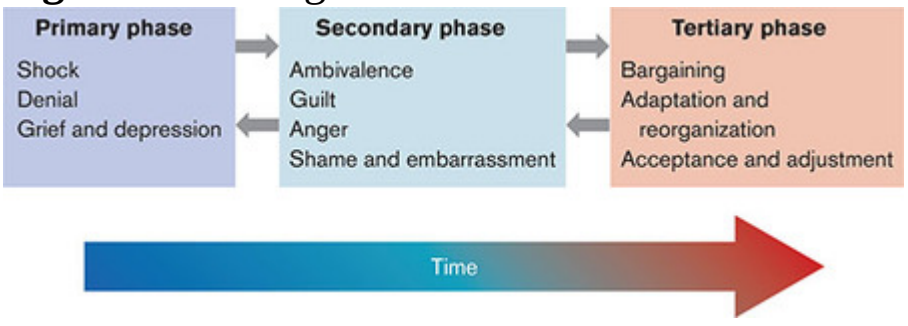
According to Gargiulo's (1985) model (see Figure 4.3), parental reaction to a disability includes three stages and encompasses a wide variety of feelings and reactions. This model is a generic one because parents of children with different disabilities frequently experience common feelings and react in similar fashion. Reactions differ more in degree than in kind. Gargiulo stresses the uniqueness and variability of the response pattern. He also

emphasizes flexibility because of each family's unique situation and that feelings and emotions are likely to recur over the family life cycle. The order of parental response is not predictable, nor does movement completely depend on successful resolution of an earlier feeling. Gargiulo explains,

> It should be noted that not all parents follow a sequential pattern of reaction according to a predetermined timetable. The stages should be viewed as fluid, with parents passing forward and backward as their individual adjustment process allows. Some individuals may never progress beyond hurt and anger; others may not experience denial; still others accept and adjust rather quickly to their child's abilities and disabilities. Also both parents do not necessarily go through these stages together. Each parent will react in his or her own unique way. (p. 21)

Figure 4.3 suggests the diverse emotional pattern that some parents experience. The initial response is often one of *shock* and disbelief; parents are poorly prepared, in most instances, for the news of their child's disability. Parents will sometimes evidence *denial* as a form of escape from the reality of the disability. (See the accompanying First Person feature on page 109.) The primary phase is also characterized by *grief*, as parents mourn the loss of their "ideal child" or "perfect baby." Depression and withdrawal are common consequences of the grieving process.

Figure 4.3 A Stage Model of Parental Reaction to Disability



Source: Gargiulo, *Working With Parents of Exceptional Children: A Guide for Professionals*. © 1985 Wadsworth, a part of Cengage, Inc. Reproduced by permission.

First Person: A Parent's Perspective on Denial

As a teacher educator, I often hear about parents who are "in denial." This is most often stated by a teacher who is trying to get help for a student. While well intentioned, the teacher is usually expressing his or her frustration with a parent or guardian who seems to discount the child's difficulties and, thus, refuses support or intervention.

As the parent of a child with special needs—a 15-year-old daughter diagnosed with a learning disability and an emotional impairment—I can't help but feel bothered by the claim that a parent is "in denial," so I wish to offer the following perspectives.

First, denial implies a stage theory of how parents cope with the news of their child's disability. Such theories are often based on Kubler-Ross's five stages of grief implying that a parent goes through some version of denial, anger, depression, bargaining, and acceptance. Yet, I doubt any parent moves through these stages in a linear fashion; rather, our feelings are highly variable. My feelings toward my daughter vacillate on almost a daily basis. I believe these ups and downs are true for many parents, not just parents of children with a disability.

In my case, concerns about my daughter occurred early on. She didn't roll over until she was 10 months of age, but being adopted, she came from a culture where children were not stimulated in the same ways that are common in American culture. She didn't walk until she was 15 months of age. My child care provider warned me that she had never seen a child learn to walk so late, but my pediatrician told me not to worry—my daughter was within the normal developmental range. My daughter learned to read and write more slowly than her peers, and these activities required more effort on her part. I was acutely aware of this, but her teachers told me not to worry; she would "catch up" when she was ready.

My daughter did not receive special education services until the third grade. Was I "in denial" all those years? I don't think so. I know that labeling a child, and offering him or her a special education, has some risks. Social comparisons start early, and children often feel even more insecure about their differences when we call attention to them.

It is unclear that a special education offers an advantage for *all* students. If parents knew that their child would unequivocally benefit from receiving a special education, I believe more parents would choose for their child to receive services. There is another issue, however. Show me the research that proves that special education always benefits students. If we truly believed this, why would we be implementing intervention models

such as response to intervention (RTI), which strives to keep struggling learners in the general education classroom?

Many parents realize that acknowledging their son or daughter has a disability has a down side. They know that their child can be negatively impacted by the attention focused on his or her differences. They know that some teachers may believe that children who are identified will achieve less. They are aware of the self-fulfilling prophecy. Parents are experts in knowing their own children, and they are very sensitive to their child's needs, characteristics, and individuality.

Even though it seems clear to you, as an educator, that a child requires special services, a parent often views the situation from a very different perspective. She or he often arrives at your classroom door with conflicting information from a variety of sources—other parents, child care providers, doctors and other professionals, friends, and relatives. Couple this with concerns about the negative impact of labeling and the uncertainty about the advantages of a special education, and it is easy to see why some parents may be reluctant to have their son or daughter receive services. To say a parent is denying a child's disability or the need for a special education seems to me to be a misunderstanding of the complexity of the situation.

Finally, I truly believe that almost all parents care about their children. But caring takes different forms, and often a parent's response is not what we expect. It may be unfamiliar to us because of differences in our experiences or backgrounds. We attribute a parent's response as lack of caring when, in many cases, we don't truly understand that parent's situation, expectations, or style of parenting.

I don't have any answers; I simply share my own experiences and thoughts as a parent. Nevertheless, the next time you or your fellow teachers are tempted to conclude that a parent is "in denial," I hope that you will have just a bit more sympathy for the complexities of parental experiences and the rationality of the parents' beliefs in the imperfect world in which we all live.

Anonymous

These initial reactions are followed by a secondary phase distinguished by what Blacher (1984) calls a period of emotional disorganization. It would not be uncommon during this stage for parents to vacillate between periods of total dedication and self-sacrifice (a martyr's posture) and rejection (in terms of affection and/or physical needs). Gargiulo (1985) identifies these behaviors as indicating *ambivalence.* One of the most common and difficult feelings for parents to deal with is *guilt*—that somehow they may have contributed to their son or daughter's disability. Guilt generally follows an "if only" thought pattern: "If only I hadn't had that drink while I was pregnant," "If only we had gone to the hospital sooner," "If only I kept the

medicine cabinet locked." During this stage, overcompensation is common, as parents attempt to "make it up" to the child. This represents an effort to appease the parents' feelings of guilt. Equally common is a display of *anger* and hostility, frequently followed by the question "Why me?" for which no satisfactory answer exists. Finally, *shame and embarrassment* are also typical consequences that parents may experience as a result of having a child who is disabled. Some parents are fearful of how family, friends, and society in general will react to their son or daughter, and social withdrawal is not unusual. A parent's self-esteem may also be threatened. One parent writes:

> I felt I was a nobody. Any credits of self-worth that I could give myself from any of my personal endeavors meant nothing. Graduating from college and a first-rate medical school, surviving an internship, practicing medicine and having two beautiful sons and a good marriage counted for nil. All I knew at this point was that I was the mother of an abnormal and most likely retarded child. (Ziskin, 1978, p. 75)

Bargaining commences the tertiary phase, as parents seek to "strike a deal" with God, science, or anyone they believe might be able to help their child. Rarely seen by outsiders, it represents one of the final steps in a parent's ongoing process of adjustment. A period of *adaptation and reorganization* also occurs, as parents become increasingly comfortable with their situation and gain confidence in their parenting abilities. In Gargiulo's (1985) model, as in many others, *acceptance and adjustment* are seen as the eventual goal that most parents aim for. Acceptance is characterized as a state of mind whereby a deliberate effort is made to recognize, understand, and resolve problems. Parents also discover that acceptance involves not only accepting their son or daughter but also accepting themselves and acknowledging their strengths and needs. Related to acceptance is the concept of adjustment, which implies both positive and forward-moving action. Adjustment is a gradual and, in some instances, difficult and lifelong

process that demands a realignment of goals and ambitions. For many parents, it is an ongoing struggle.

Gargiulo (1985) and, more recently, Berry and Hardman (1998) believe that the preceding reactions and feelings are legitimate, automatic, understandable, and perfectly normal. Parents have a right to exhibit these emotions and to express their feelings. They are natural and necessary for adjustment. They do not represent reflections of pathology or maladjustment.

Knowledge of these stages and patterns of reaction can facilitate professionals' understanding of parental behavior and assist them in providing appropriate support when necessary. Sensitive and caring support from professionals can be very important for parents because typical sources of support, such as friends and other family members, may not be available (Berry & Hardman, 1998). Researchers believe that a family's adaptation to disability is closely linked to the level of support received from other family members as well as community resources (Blasco, Johnson, & Palomo-Gonzalez, 2008; D'Asaro, 1998). The availability and quality of social support are crucial to a family's ability to cope with and adjust to a child with a disability (Santelli, Turnbull, Marquis, & Lerner, 1997; Singer, 2002).

Disability and the Family

A family systems approach and the theorizing of Bronfenbrenner (1977, 1979) suggest that the entire family constellation is altered and affected in various ways by the presence of a child with an exceptionality. Contemporary thinking about families of children with disabilities has evolved from a dyadic focus on mother–child interactions to an exploration of family dynamics within an ecological framework. Because we consider a family to be an interdependent and interactive social system, when a situation arises such as a child's disability, this issue must be viewed and can only be fully understood within the context of the family unit. As one sibling of a child with a disability notes:

> All of the members of my family are disabled. But most people recognize only the disability of my deaf sister. They do not realize that the disability of one member affects the entire family. Parents realize this to some extent because they themselves are affected—their attitude, their priorities, their lifestyles. But sometimes they become so involved with the problems directly related to their disabled child that they lose sight of the effect upon the other children. (Hayden, 1974, p. 26)

There is no easy way to answer the question "How does a child with a disability affect his or her family?" How one family copes with and adapts to a member's disability will most likely be radically different from how another family does. Much depends on individual family factors such as the parents' marital integration, religious beliefs and values, financial resources, cultural heritage, and external support system. Additionally, child characteristics such as gender and the severity of the impairment also mediate the family's adaptation. In our view, all of these variables interact and commingle to produce overall family adaptation.

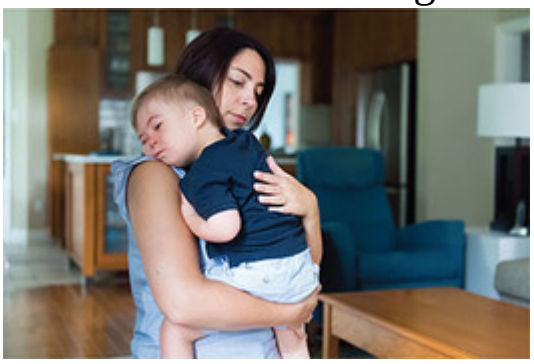
Marital Relationships

Being a parent of a child with a disability may contribute to marital tension and stress in some families. The research literature on divorce in families of children with disabilities is limited, however, and the findings are frequently contradictory. In some instances, divorce and marital difficulties are common adjustment problems (Banks, 2003; Hodapp & Krasner, 1995); in other situations, marriages are strengthened (Scorgie & Sobsey, 2000; Scorgie, Wilgosh, & McDonald, 1998). Investigators have also found no difference in divorce rates between families with and without children with disabilities (Meadan, Halle, & Ebata, 2010; Seligman & Darling, 2009; Turnbull et al., 2015). Although being a parent of a child with a disability may result in significantly greater stress for both mothers and fathers (Hutton & Caron, 2005; Olsson & Hwang, 2001), it would be false to conclude that marital deterioration is an automatic consequence (Blasco et al., 2008). It is simply unclear why some marriages remain intact and others disintegrate. We suspect that the answer lies in the mixture of parent and child characteristics interacting with specific ecological factors.

Mothers of Children With Disabilities

In many American households, women are primarily responsible for the raising of children, although more men are currently assuming greater child-rearing responsibilities. Still, in many families, mothers are particularly vulnerable to the stresses, strains, and added difficulties engendered by a child with a disability (Trachtenberg, Batshaw, & Batshaw, 2007). In some circumstances, these problems may be immediate, such as when a baby is born with Down syndrome or multiple disabilities; in other instances, mothers may encounter added stress when a disability is recognized after a son or daughter enters school. New roles, responsibilities, and routines for mothers are not uncommon when a youngster has a disability. The dynamics of the entire family relationship may also change.

Mothers are particularly vulnerable to the stresses, strains, and added difficulties engendered by a child with a disability.



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A sense of feeling overwhelmed, concern about family finances, physical—and, in some instances, mental—exhaustion, impaired relationships with other family members, and the impact on employment are just some of the issues confronting mothers when their child has a disability. Of course, the type and severity of the disability, the time of its onset, and access to support systems often mediate the situation. Having a supportive husband

or partner is crucial to helping mothers successfully cope with the stresses of raising their son or daughter with a disability (Power & Dell Orto, 2004). In some communities, support groups and **respite care** provide a valuable source of relief for mothers as well as other family members.

respite care Temporary or occasional care of an individual with disabilities by nonfamily members.

Fathers of Children With Disabilities

Fathers are beginning to receive more attention from professionals, who are becoming increasingly cognizant of the needs of fathers and urging their active involvement in intervention programs for children with disabilities (Flippin & Crais, 2011; Rump, 2002).

When researchers investigate the effect of a child with disabilities on fathers and mothers, discrepant findings are not unusual. Lamb and Meyer (1991) and, more recently, Trachtenberg et al. (2007) found, for example, that fathers and mothers react differently to the news of their child's disability. Fathers, in general, are less emotional in their reaction, tend to focus on the long-term consequences, and seem to be more affected by the visibility of the disability. Mothers are more expressive in their responses and are worried about the day-to-day burdens of child care.

The father's attitude toward his son or daughter who is disabled is very likely to influence the attitude of other family members (Seligman & Darling, 2009; Turnbull et al., 2015). A disability diagnosis can also affect how a father evaluates his family life, which can subsequently influence the perceptions of the entire family. These conclusions are in line with our family systems approach to understanding the effect of a disability.

First Person: Kristina Day Dreams

More than once during the last twelve years since our daughter, Kristina, was born with cerebral palsy I have daydreamed wistfully about what she might have been like if only . . .

Would she run fast and jump high? Would she enjoy reading as much as her mom and I? Would she love to climb trees like her dad, or make crafts like her mom? How much different would she look, would her face change, how might she look if she could sit or stand straight? Would her voice be different? Would she like the same things she likes now: cards, telephones, swimming, speed? Would she have done well in school? Would she enjoy math or English? What kinds of friends would she have made? How would I

have responded to her first boyfriend? What kind of nickname might she have been given? Could she have performed a solo in a choir or played an instrument? How would she look riding a bike or rollerblading down the hill? Would she like tennis? Would she have gotten the same thrill with horses as her grandmother?

At first, I daydreamed out of self-pity; later I felt ashamed but now I have grown to view it as an occasionally pleasant diversion. I realize now, it is only human nature to wonder and second guess about choices made and paths not taken. Once our lives have irrevocably gone in one direction, many look back and wonder what it might be like to live in another place or time, do another job, or live another life. It's harmless, it's healthy.

I guess I stopped feeling ashamed of my daydreams when I realized that I couldn't be happier than I am right now. I have a wonderful wife, three willful and happy children, and many things that others daydream about.

Despite human nature, down deep I do not want anything around me to change. While I might like to try on a different job much as I might like to try on a different style of clothes, I know it wouldn't be me. In the same way, I might like to meet a different Kristina, but she wouldn't have the same infectious laugh, the same genuine feelings, or the same love of life. I wouldn't like the impostor much and I know I couldn't love her. I've been blessed with the perfect one, and I could never have imagined anything better.

Source: J. Cox, "Day Dreams," *Young Exceptional Children, 1*(1), 1997, p. 17.

Siblings of Children With Disabilities

Is having a sibling with a disability a positive or negative experience? The safest answer to this intriguing question is “It depends.” The research evidence provides conflicting findings. The impact of a brother or sister with special needs seems to be mediated by a number of variables; and, of course, the child’s needs can only be considered within the context of the entire family constellation. Siblings are likely to exhibit a wide range of adaptive responses that are affected by parental attitudes and expectations, family socioeconomic status, the severity and type of impairment, family size, sibling gender and age spacing, child-rearing practices, cultural heritage, and the availability of support systems (Gargiulo & Kilgo, 2020; Love, Taylor, Turner, & Sabousky, 2018). We must not forget, of course, that while a child with a disability affects his or her typical brother or sister, this sibling is also influencing, in both positive and negative ways, the sibling with an exceptionality.

Siblings often exhibit a myriad of feelings toward a brother or sister with special needs.

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Over the years, several investigators (Gallagher, Powell, & Rhodes, 2006; Hutton & Caron, 2005; Love et al., 2018; Simpson & Mundschenk, 2010) have identified adverse outcomes in sibships involving an individual with a

disability. Some of the frequently mentioned deleterious effects include depression or social withdrawal and anxiety, jealousy, and sadness, as well as lower self-esteem and poor peer relationships. In addition, excessive child care requirements placed on older siblings often result in feelings of anger and resentment (McHugh, 2003). Some brothers and sisters exhibit "survivor's guilt" due to the absence of illness or disability in their own lives (Russell, Russell, & Russell, 2003). Younger siblings who are typical are sometimes concerned about becoming disabled or ill themselves. Finally, when siblings lack adequate information about their brother or sister's disability, they often become confused and concerned about their own identity (Seligman & Darling, 2009).

It would be totally incorrect, however, to portray sibships with a brother or sister with a disability as having exclusively negative outcomes (Simpson & Mundschenk, 2010; Turnbull et al., 2015). The research literature also provides a more optimistic outlook. As an example, Grossman's (1972) classic retrospective investigation of siblings of children with intellectual disability notes such benefits as greater tolerance toward others, increased compassion, and higher levels of empathy and altruism as a result of growing up with a brother or sister with a disability. Likewise, Meyer's (2014) more recent work and Heller and Kaiser's (2019) review poignantly validates the many positive aspects experienced by siblings of individuals with special needs.

Siblings typically exhibit a myriad of feelings toward a brother or sister with special needs. The accompanying First Person feature (page 114) vividly captures some of these emotions. Table 4.3 gives examples of some of the reactions and feelings sustained by brothers and sisters of children with disabilities.

Table 4.3 Emotional Responses of Children Toward Siblings With a Disability

Table 4.3 Emotional Responses of Children Toward Siblings With a Disability

Emotion	Response
Resentment	Perhaps the most common reaction experienced by typical siblings is resentment. It is a natural by-product of being angry about having a brother or sister with a disability. Resentment may develop because the child with special needs may require a disproportionate amount of the parents' attention. This sibling may also prohibit the family from participating in certain experiences or excursions. Special treatments and/or therapy may contribute to family financial hardship. Older siblings may resent having to babysit, or having social constraints placed upon them by their younger brother or sister who is disabled.
Jealousy	Resentment can easily develop into jealousy, especially if the typical sibling perceives that he or she has lost "favor" with the parents. The brother or sister with a disability may become a rival or competitor for the parents' attention and affection. Often the typical sibling will engage in behaviors designed to secure parental attention, such as having academic or behavioral problems in school, telling lies, or exhibiting unusual mischievousness.
Hostility	From feelings of jealousy often comes hostility, which is a perfectly natural reaction. Unlike objective adults, children are subjective and consider events in terms of how they are personally affected. They may view their brother or sister with special needs, rather than the disability, as the source of all their problems. Therefore, feelings of hostility are usually aimed toward their sibling.

Emotion	Response
	These feelings may manifest themselves in physical aggression or verbal harassment and ridicule. In some instances, hostility is directed toward the parents through acts of disobedience or impertinence.
Guilt	Siblings without disabilities frequently evidence feelings of guilt; however, these reactions differ from the parents'. Their guilt may stem from the negative feelings they have about their brother or sister, or it may be a consequence of having mistreated their sibling. Furthermore, when viewing their sibling who has an impairment, some children experience guilt because of their own good fortune to be thought of as typical.
Grief	Siblings frequently grieve for their brother or sister who is disabled. Their grief is often a reflection of their parents' sorrow. They grieve not for what they have lost, but for what will possibly be denied to their sibling.
Fear	Typical siblings may also experience fear. They may be fearful of acquiring a disability or of their own future children being disabled. A further worry is that someday they may have to assume total responsibility for the care of their sibling.
Shame and embarrassment	Shame and embarrassment are common emotional responses of typical siblings. A child may be ashamed of his or her brother or sister who is intellectually disabled, embarrassed to have friends

Emotion	Response
	visit, or embarrassed to be seen in public with his or her sibling.
Rejection	In some families, siblings who are typical may reject their brother or sister with a disability. They may reject the reality of the impairment. More commonly, however, rejection is shown by withholding affection or ignoring the sibling's existence.

Source: Adapted from R. Gargiulo, *Working With Parents of Exceptional Children: A Guide for Professionals* (Boston, MA: Houghton Mifflin, 1985), pp. 51–52.

Siblings can sometimes benefit from support groups or workshops such as Sibshops (Meyer & Vadasy, 2008) where brothers and sisters of siblings with special needs can share feelings and obtain peer support as well as information within a recreational environment. One valuable resource for siblings is the Sibling Support Project, a national organization that focuses on the concerns of brothers and sisters of individuals with special needs (for additional information, see www.siblingsupport.org).

First Person: A Mother's Personal Perspective Eight Things Siblings of Children With Special Needs Struggle With

Having a sibling with special needs is a reality many children are born into, including my three typically developing children. Of all the things my children experience that I never did, their experiences of growing up with a sister with significant disabilities is something I struggle to understand, even as I watch it unfold daily.

The advantages of having a brother or sister with special needs are numerous and include being more empathetic, more responsible, and more resilient. However, these typically developing siblings also shoulder tremendous burdens that are not often or easily discussed.

Documentary filmmaker Rachel Feichter has two daughters, one of whom has special needs. In an effort to better understand the needs of her typical daughter, Feichter began

interviewing siblings of individuals with special needs for a forthcoming documentary. While noting that every sibling—and every family—is different, she found some common experiences, many of which my own children are having.

- **Feeling like they need to be perfect.** Siblings of individuals with special needs know how hard their parents work to ensure all of their sibling's needs are met, and often see their parents struggle to meet these needs. Many feel like they can't make mistakes because that would add to their parents' burden, so they believe they must be perfect at all times. This is an impossible standard to meet, and can lead to stress and feelings of inadequacy. One girl said she felt like she "had to be Ms. Perfect and not have any problems for [her] parents to deal with." Another said that she felt as though she could never be "enough."
- **Feeling like they can't express their feelings.** Most typically developing children love their sibling with special needs. Yet they may also resent how much of their parents' time is taken up with caring for their sibling or feel embarrassed about their sibling's behavior. One girl said she "was never allowed to mourn openly or to be mad or sad about [her] brother," and another said her friends thought she was being mean if she said anything bad about her sister, even though friends with typically developing siblings often complain.
- **Having a different idea of family and home.** For most children, the concept of a family is based in togetherness. But when a sibling has special needs, family quality time may look different. One girl recalled that her mother was "assigned" to her sister with special needs while her father was "assigned" to her. The family often spent time apart, especially when it involved leaving the house. In many families, the sibling with special needs may not be able to attend certain events or go to certain places for a variety of reasons, including therapy and medical appointments, physical barriers to access, or sensory issues. In some cases, the presence of caregivers and therapists may define what a family home is for children. In my home, for example, our daughter is normally fed by a personal care attendant. A therapist is often present at our family meals as well. Nonfamily members are typically also present even during lazy weekends at home. Some siblings said that places outside the home, such as school or a relative's house, are more of a refuge for them than their home.
- **Feeling as though their problems are minimized.** Sometimes a sibling with special needs has complex and even life-threatening problems. An issue faced by a typically developing sibling, whether it is a problem with a friend or an academic struggle, may seem small compared to having limited mobility, learning difficulties, or sensory issues that require intensive care or prevent a child from attending the neighborhood school. One girl said her parents rarely dealt with her problems, instead telling her to be "strong." Another felt her parents never took her problems seriously because they considered her the "lucky one" for not having a disability.
- **Feeling isolated.** Typically developing siblings may feel lonely because they don't have peers who have a brother or sister with special needs. So they feel different when their friends ask, "What's wrong with your sister?" Some children also feel self-conscious about their sibling with special needs, and aren't sure when or how to tell their friends about him or her. Others feel uncomfortable inviting friends over because they are unsure how their friend or sibling will react.

Grandparents of Children With Disabilities

Professionals are becoming increasingly aware of the important role that grandparents play in contemporary family life. They are significant members of many family constellations. When a child with a disability enters the family unit, grandparents are affected just as parents and siblings are.

Just as parents exhibit a wide range of emotional responses to the news that their son or daughter has a disability, grandparents are not immune to feelings of grief, shock, depression, anger, and so forth. They, too, often go through stages of acceptance. Grandparents also experience a dual hurt: They are concerned and anxious not only about their grandchild but also about their son or daughter, who is now a parent of a child with a disability (Zajicek-Farber, 2019).

How grandparents respond to a grandchild with a disability can be an additional stressor for the child's parents or a source of strength and support. Grandparents, in the words of Gearheart, Mullen, and Gearheart (1993), can be "the glue that holds the family constellation together" (p. 493). They are capable of greatly contributing to the overall functioning and well-being of the family. Their contributions can range from serving as alternative caregivers, to providing sources of community support, to assisting in the daily chores of shopping or running errands, but perhaps the greatest area of assistance is providing emotional support (Miller, Buys, & Woodbridge, 2012; Seligman & Darling, 2009).

As we have just seen, a person with a disability affects his or her family in many ways—some positive and others negative. It is refreshing, however, to see researchers and other professionals acknowledging the positive effects that a child with a disability has on family life. No longer is a disability exclusively thought to be a burden for the family. "There has been a growing recognition," Glidden and Floyd (1997) write, "of the rewards and benefits involved in rearing children with disabilities" (p. 250). It is primarily a matter of perspective.

Working With Families Who Are Culturally and Linguistically Diverse

As we discovered in Chapter 3, teachers are working with a growing population of pupils who are culturally and linguistically diverse, of which a disproportionate number are enrolled in special education programs. Effective teachers are sensitive to the needs of these children as well as the needs of their parents and extended family members. If the cultural and linguistic heritage of the parents is not respected, then the development of optimal relationships will likely be undermined (Gargiulo & Kilgo, 2020).

Many of the strategies and programs, however, that are designed to solicit parental involvement have been devised primarily to serve middle- and upper-income English-speaking families from the macroculture (Meyer, Park, Bevan-Brown, & Savage, 2016; Mueller, 2017). Thus, it is highly probable that families from culturally and linguistically diverse backgrounds will fail to appreciate and respond to strategies designed to support home–school partnerships and enhance their role in the special education process.

Some of the roadblocks or obstacles that may impede the full and meaningful involvement of caregivers from outside the mainstream American culture include the parents' limited English proficiency, their previous negative experiences with schools, an unfamiliarity with their rights and responsibilities, a deference to teachers and other professionals as the decision makers ("teacher knows best"), and, in some instances, a lack of trust in the educational system (Ferguson et al., 2014; Lo, 2012; Meyer et al., 2016; Rossetti, Sauer, Bui, & Ou, 2017). Establishing meaningful collaborative relationships with families from culturally and linguistically diverse backgrounds also requires that professionals respect the family's interpretation of the disability and its origin; the family's child-rearing beliefs, medical practices, and traditions; the family's structure and decision-making style; and the family's religious views and preferred manner of communication (Gargiulo & Kilgo, 2020). The best intentions of

teachers can easily be misinterpreted if they fail to consider the family's value system and cultural traditions. For example, a Hispanic American family may be uncomfortable with and reluctant to agree to a recommendation that it consider placement in a group home for its daughter with an intellectual disability. To the transition specialist, this may appear to be a perfectly reasonable and appropriate suggestion. However, unlike Anglo Americans, who generally emphasize accomplishment, independence, and self-reliance, Hispanic Americans are more likely to value interdependence, cooperation, and familial cohesiveness. Because of these differences in values and beliefs, this recommendation will likely be inappropriate for this particular family.

Teachers must exhibit cultural sensitivity when working with families whose cultural or linguistic heritage is different from theirs.

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It is very important that teachers exhibit **cultural sensitivity** when working with families with a cultural or linguistic heritage different from their own. Cultural sensitivity implies an awareness of, respect for, and appreciation of the many factors that influence and shape the values, priorities, and perspectives of both individuals and families (Hanson, 2004a). Educators need to be knowledgeable about different values, social customs, and traditions so that they can respond effectively to the needs of all their pupils while concurrently building partnerships with the students' families. By

becoming informed about and sensitive to cultural differences, teachers are in a position to empower parents and create equitable relationships (Lustig & Koester, 2018). We offer the following note of caution, however: Building effective alliances with families from different cultural groups demands that professionals refrain from generalizing about families. Although similarities may exist among families, such as a shared heritage or common language, assuming that a family will behave in a certain way simply because of membership in a particular group often leads to stereotyping, which only hinders the development of meaningful home–school partnerships. Remember, just as each student is unique, so is each family. Although families are influenced by their cultural background, they should not be defined by it. No list of ideas or suggestions can guarantee that services will be provided in a culturally sensitive fashion, but the accompanying Strategies for Effective Teaching and Learning feature (page 118) offers recommendations for building meaningful relationships with families who have culturally or linguistically diverse children.

cultural sensitivity A perspective adopted by professionals when working with families in which there is an awareness of and respect for the values, customs, and traditions of individuals and families.

Cultural Reactions to Disability

A family's cultural heritage shapes its reaction to and interpretation of disabilities. Because a disability is a socially and culturally constructed phenomenon (Ferguson et al., 2014; Gollnick & Chinn, 2017; Harry & Klinger, 2007), families from culturally diverse backgrounds may have differing perspectives on the meaning of exceptionality. These alternative views can easily affect the evaluation process, educational planning, life goals, and our attempts at establishing collaborative relationships (Turnbull et al., 2015).

A disability should always be considered within its cultural context. Each culture defines what it considers to be deviant as well as normal. "Aspects of human variance that are perceived as disabling conditions in one culture may not be perceived as such in another" (Voltz, 1998, p. 66). Harry's (1995) research with families who are culturally diverse seems to suggest that a disability is defined by the child's ability to function in the home environment coupled with the family's expectations for the child's future. Differences in interpretation can pose problems for professionals. For instance, some parents may not consider their child's variance to be severe enough to warrant the label *disabled*. Harry (1992) relates an account of a grandmother living in Puerto Rico whose daughter was labeled intellectually disabled; the process repeated itself with her granddaughter. This grandmother questions the wisdom involved in the identification of her granddaughter:

> Now they're saying the same thing about my granddaughter, but she has nothing wrong with her mind either. She behaves well and she speaks clearly in both Spanish and English. Why do they say she's retarded?
>
> Americans say that the word *handicap* [italics added] means a lot of things, it doesn't just mean that a person is crazy. But for us, Puerto Ricans, we still understand this word as "crazy." For me, a

> person who is handicapped is a person who is not of sound mind, or has problems in speech, or some problem of their hands or legs. But my children have nothing like that, thanks to God and the Virgin! (Harry, 1992, p. 147)

Just as the notion of disability is determined by society, the etiology or cause of a disability is a reflection of a family's cultural reference. Different cultures perceive the cause of disability differently. Generally speaking, in the United States, we believe that the cause of a disability can be identified and treated scientifically (Hanson, 2004b). Families from different cultures may express a belief in fate, spiritual reasons, violation of social taboos, or intergenerational reprisals as possible causes for the child's disability (Gannotti, Handwerker, Groce, & Cruz, 2001; Harry, 2002). At the risk of stereotyping, some Hispanic American families may attribute a youngster's disability to "God's will." In some Asian American families, a disability is thought to bring overwhelming shame upon the family, especially if the child is male; the etiology of the disability may be seen as punishment or retribution for past sins (Misra, 1994). Many Native American cultures have no word for *disability.* In these families, a child with a disability is typically accepted and integrated into the community, fulfilling roles commensurate with his or her abilities (Lovern, 2008).

Strategies for Effective Teaching and Learning
Recommendations for Providing Families With Culturally Sensitive Services

- Provide information using the family's desired language and preferred means of communication—written notes, telephone calls, informal meetings, emails, or even audio recordings.
- When appropriate, recognize that extended family members often play a key role in a child's educational development. Give deference to key decision makers in the family.
- Use culturally competent interpreters who are not only familiar with the language but also knowledgeable about educational issues and the special education process.
- Seek cultural informants from the local community who can assist teachers in understanding culturally relevant variables such as nonverbal communication patterns, child-rearing strategies, gender roles, academic expectations, medical

practices, and specific folkways that might affect the family's relationships with professionals.
- Attend social events and other functions held in the local community.
- With the help of other parents or volunteers, develop a survival vocabulary of key words and phrases in the family's native language.
- Address parents and other caregivers as "Mr.," "Ms.," or "Mrs.," rather than using first names. Formality and respect are essential, especially when speaking with older members of the family.
- In arranging meetings, be sensitive to possible barriers such as time conflicts, transportation difficulties, and child care issues.
- Conduct meetings, if necessary, in family-friendly settings such as local community centers or houses of worship.
- Invite community volunteers to serve as cultural liaisons between the school and the pupil's family.

Sources: Graves, Gargiulo, & Sluder, 1996; Linan-Thompson & Jean, 1997; Lo, 2012; Misra, 1994; Parette & Petch-Hogan, 2000; Salend & Taylor, 1993.

Different meanings of disability and its etiology can be a source of tension between professionals and families from diverse cultural backgrounds. Alternative perspectives on disability and its meaning can easily affect the type of services and interventions a family is willing to ask for and accept, the family's degree of involvement in educational planning, and attempts at establishing partnerships. We are in complete agreement with Salend and Taylor (1993), who urge educators to be cognizant of and sensitive to parents' belief systems and to adjust their services and practices as needed.

Suggestions for Facilitating Family and Professional Partnerships

What ingredients are needed to establish a meaningful and effective alliance between professionals and families with children who are disabled? The answer to this question has commanded a great deal of attention. We believe that awareness of and sensitivity to the needs of the family are essential prerequisites for establishing cooperative relationships. These relationships must be built around trust, mutual understanding, and respect. Perl (1995) suggests that interactions between parents and professionals be facilitated when professionals are able to establish an atmosphere of genuine caring. The traits of honesty, empathy, and genuineness are also crucial to working effectively with families. Additionally, professionals must engage in **active listening**, which requires that service providers listen to parents and other significant persons and caregivers with understanding. Those who seek to establish meaningful partnerships with families must focus on the feelings and attitudes that accompany the words. They must be constantly aware of both verbal and nonverbal messages and their emotional significance. Listening demands the use of both the head and the heart.

> **active listening** A type of listening in which a person is attentive to the feelings as well as the verbal message being communicated.

As schools and other agencies continue to reach out to families and seek to build partnerships, it seems appropriate that the concept of *parent* involvement be broadened in favor of the term *family* involvement. In contemporary American life, many primary caregivers are adults other than the youngster's biological parents; grandparents, older siblings, foster parents, and extended family members often fill this vital role. The involvement of families can have a beneficial effect on many different dimensions of school life:

- Pupil achievement
- The student's educational aspirations

- The length of time individuals stay in school
- Teachers' perceived efficacy of their teaching abilities
- Teachers' perceptions of caregiver effectiveness
- Caregivers' ratings of schools (Matuszny, Banda, & Coleman, 2007)

Today, parent (family) participation in the educational decision-making process is a right, not a privilege. Professionals can facilitate meaningful partnerships with families by their actions and attitudes. Being supportive of families and their unique circumstances, demonstrating concern and empathy, and acknowledging one's own limitations can go a long way toward building lasting partnerships with a student's family. Carefully consider the following statements. Do you think that caregivers would appreciate hearing these remarks from a professional?

- It's not your fault. You are not powerful enough to have caused the kinds of problems your child has.
- What do you need for yourself?
- I think your son could be a success story for our agency.
- I value your input.
- Under the circumstances, you are doing the best you can do. Frankly, I don't know what I would do or how I would be able to carry on.
- If you were a perfect parent, your son would still be in this condition.
- I agree with you.
- Your child has made progress, and I know he can do more, so we will continue to work with him.
- Why are you taking all of the blame? It takes two to make or break a relationship.
- I don't know. I can't tell you what's wrong with your child or what caused the problem.
- Your child knows right from wrong. She knows most of society's values, and that's because you taught them to her.
- There is a lot of love in your family.
- You know, it's okay to take care of yourself too.
- I don't know. I have to give that serious thought.
- I believe in your instincts. You're the expert on your child.
- You're being too hard on yourself.

- Our agency will take your case.
- Thanks so much for your participation in the group [parent support group]. Your intelligence and your calm reasonableness are important influences in the group. (*Family Support Bulletin*, 1991, p. 20)

We also believe that effective alliances with caregivers of children with special needs require that service providers attend to the following suggestions developed by Gargiulo and Graves (1991):

1. *Explain terminology*. Many parents [caregivers] have no previous experience with exceptionality. This may be their first exposure to a disability label. The parents' [caregivers'] conceptualization of cerebral palsy or intellectual disability is most likely very different from that of the professional.
2. *Acknowledge feelings*. Parents [caregivers] will frequently exhibit negative feelings when confronted with the news that their son or daughter is disabled. Professionals need to send a message that it is okay to have these feelings. They need to be acknowledged and then understood.
3. *Use a two-step process when initially informing parents [caregivers] that their child requires special educational services.* After sharing diagnostic information, it is strongly suggested that professionals allow parents [caregivers] time to comprehend and absorb what they have been told. The parents' [caregivers'] affective concerns must be dealt with before proceeding with matters such as intervention recommendations, treatment regimens and strategies, or duration of services. These issues should be addressed in a follow-up interview as the parents' [caregivers'] emotional state permits.
4. *Keep parents [caregivers] informed*. Use a variety of two-way communication techniques. Be as positive as possible when discussing a child's performance. Demonstrate respect, concern, and a sincere desire to cooperate.
5. *Be accountable*. If you agree to assume certain responsibilities or gather information for the parents [caregivers], be certain to follow through. Accountability demonstrates to the parents [caregivers] that

> they can depend on you. Trust, consistency, and dependability significantly increase the chances for an effective relationship. (p. 178)

Remember, being a parent of a child with a disability is not a role that most parents freely choose for themselves. Yet it is within professionals' power to help make this a beneficial experience while promoting the development and effective functioning of the entire family unit.

Special attention is sometimes required when working with parents of students from culturally and linguistically diverse backgrounds. Like many other parents, these families are often an untapped resource for educators. As we have seen, effective involvement of these families in the educational lives of their children requires that teachers be sensitive to the cultural norms, values, and beliefs held by the family.

Chapter in Review

Parent–Professional Relationships: Changing Roles (Learning Objective 4.1)

- Three distinct periods characterize the history of parent–professional relationships: (1) antagonistic and adversarial relationships, (2) working partnerships, and (3) parent empowerment and family-centered relationships.
- The passage of IDEA changed the status of parents from passive recipients of services to active participants and allies with professionals.
- The focal point of professionals' attention is now the child's family rather than just the parents. The family is seen as the primary decision maker.

A Family Systems Approach (Learning Objective 4.2)

- A family systems model considers the family to be an interactive and interdependent unit; whatever affects one family member has repercussions for the other members of the unit.
- The Turnbull family systems model contains four interrelated components: family characteristics, family interactions, family functions, and family life cycle.

Stages of Parental Reaction to Disability (Learning Objective 4.3)

- A stage theory model for explaining parental reactions to the diagnosis of a disability is constructed around the premise that parents experience a grief cycle similar to the stages of reaction to the death of a loved one.

Disability and the Family (Learning Objective 4.4)

- The entire family constellation is affected by the presence of a child with a disability. The various subsystems and individual family members are uniquely impacted. No two families are likely to deal with an exceptionality in quite the same way.

Working With Families Who Are Culturally and Linguistically Diverse (Learning Objective 4.5)

- If the values, traditions, and beliefs of caregivers from culturally and linguistically diverse backgrounds are not addressed, then the development of optimal relationships will very likely be hindered.
- Teachers must exhibit culturally sensitive behavior when working with families whose backgrounds differ from their own.

Suggestions for Facilitating Family and Professional Partnerships (Learning Objective 4.6)

- In order to establish meaningful and effective alliances with families with children who are disabled, it is recommended that professionals create partnerships built around the principles of honesty, trust, and respect.
- Service providers must be genuine and exhibit a caring attitude, using active listening when communicating with family members and other significant adults.

Study Questions

1. How has the relationship between parents and professionals changed over the years? What circumstances have aided this process?
2. What was the purpose of the eugenics movement, and how did it affect relationships between professionals and parents?
3. Why do professionals currently believe that efforts should be directed toward working with families of children with special needs instead of just parents?
4. Define the term *collaboration* as it pertains to professionals and parents.
5. What is the rationale behind a family systems model?
6. Identify the four key components of the Turnbull family systems framework. Explain the characteristics of each of these elements.
7. How does the concept of cohesion differ from adaptability in the Turnbull model?
8. What are the stages of emotional response that many parents go through when informed that their child has a disability? Give examples of the types of behavior typically exhibited at each stage.
9. What cautions does Gargiulo stress when applying a stage theory model to parents of children with disabilities?
10. In what ways might a child with a disability affect his or her family?
11. What does the research literature suggest about the impact of childhood disability on marital relationships, mothers, fathers, siblings, and grandparents of children with special needs?
12. Name five emotional responses typically exhibited by siblings of children with disabilities.
13. Why are an awareness of and sensitivity to cultural and linguistic differences important for professionals when working with families of children with disabilities?
14. Describe what you believe to be key personal characteristics of professionals who work with families of individuals with disabilities.

Key Terms

eugenics movement, 100
family systems model, 104
family characteristics, 104
family interactions, 105
cohesion, 105
adaptability, 105
family functions, 105
family life cycle, 106
transition, 106
stage theory, 107
respite care, 111
cultural sensitivity, 117
active listening, 119

Learning Activities

1. Talk to family members of a person with a disability. Learn how the family adapted to the person's exceptionality and how the family as a whole and individual members were or still are affected by the disability. Be certain to ask sensitive questions and ensure confidentiality.
2. Attend a support group meeting for family members of a person with a disability. What kinds of information were presented, and how was it delivered? In your opinion, did those in attendance benefit from the experience?
3. Develop a list of resources and supports in your community aimed at assisting individuals with disabilities and their families. Share your list with your classmates. Examples of resources and supports might include recreational opportunities, religious programs, support groups, respite care, local chapters of national parent/advocacy groups, and health care professionals who work with people with disabilities.
4. Discuss with two general educators and two special education teachers the strategies and techniques they use to establish parent–professional partnerships. What activities seem to be most effective for ensuring meaningful participation? How do these professionals ensure the involvement of parents from culturally and linguistically diverse backgrounds?
5. Volunteer to work for an organization that provides respite care for families of children with disabilities. Keep a journal about your experiences.
6. Interview parents or other family members from diverse cultural backgrounds as a means of learning about their perspectives on disabilities and the educational

system, as well as any culturally specific behaviors and values such as child-rearing practices and communication styles.

Reflecting on Standards The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Learner Development and Individual Learning Differences (CEC Initial Preparation Standard 1.1)

Reflect on a time when you negatively stereotyped someone because of his or her culture, language, religion, gender, disability, socioeconomic status, or social orientation. How might stereotyping a student or his or her family negatively affect your teaching? What strategies might you want to put in place in your classroom to avoid stereotyping?

Focus on Collaboration (CEC Initial Preparation Standard 7.3)

Reflect on the various ways your family was involved in your education. What are the advantages to fostering meaningful partnerships with your students' families? How will you want to involve families in your classroom?

Student Study Site

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5 Assistive Technology

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Learning Objectives

After reading Chapter 5, you should be able to:

5.1 **Explore** educational technology.
5.2 **Discuss** what makes a technology an assistive technology for students with disabilities.
5.3 **Understand** the legal and legislative aspects of assistive technology.
5.4 **Describe** assistive technology decision-making frameworks.
5.5 **Explain and describe** the different levels of assistive technology devices and purposes of assistive technology devices.
5.6 **Identify** issues facing teachers and students with disabilities involving assistive technology.
5.7 **Explore** assistive technology future trends.

Technology is now a part of the lives of *all* students inside and outside of school. In fact, recent statistics suggest students are increasingly spending their time outside of school with technology, resulting in some calling today's students the iGeneration (Coldewey, 2010; Rosen, 2011). To illustrate the trend in technology use, from the most recent data, 95 percent of teenagers report accessing or owning their own smartphone, and 48 percent of kids 0–8 are reported to possess their own tablet (Anderson & Jiang, 2018; Common Sense, 2017). Almost 90 percent of U.S. teenagers also report access to a computer at home, and almost 100 percent of kids 0–8 have a mobile phone in their home (Anderson & Jiang, 2018; Common Sense, 2017).

Technology in Education

Educational technology is defined in multiple ways, including the study and practice of facilitating learning and improving performance by creating, using, and managing technological processes and resources (Mishra, Koehler, & Kereluik, 2009). In other words, educational technologies are tools that address educational problems—for instance, issues of teaching and learning (Newby, Stepich, Lehman, & Russell, 2000). While some narrowly define educational technology as computers and computer-based applications, many define it in a broader sense and suggest educational technology has existed since the era of chalk and slate (Blackhurst, 2005a; Mishra & Koehler, 2009). Regardless of the concept of educational technology, one thing is consistent—the claim that use of a particular *technology* in education will revolutionize teaching and learning. Such claims were made for the talking picture (Devereux, 1933; Mishra et al., 2009), the blackboard (Lewis, 1988), and cell phones (Kolb, 2008; Mishra et al., 2009), just to name a few.

educational technology Technology used for educational purposes such as teaching and learning.

Despite the term *educational technology*, Mishra and Koehler (2009) suggest the technologies teachers typically use in education are not designed for educational purposes; rather, teachers repurpose such technology to be educational. In other words, teachers often take a technology, regardless of its intended purpose, and use it to fit their needs in the classroom (Kereluik, Mishra, & Koehler, 2011; Mishra & Koehler, 2007). Repurposing can involve such common technologies as digital cameras and software (for example, Photoshop) for taking pictures of objects and then manipulating the images to demonstrate mathematical concepts such as transformations (Terry, Mishra, Henriksen, Wolf, & Kereluik, 2013), as well as social media like Facebook (Kereluik, Mishra, & Koehler, 2010).

Within educational technology, pulling from a wide conceptualization, Blackhurst (2005a, 2005b) suggests the existence of six distinct types: technology of teaching, medical technology, productivity technology, information technology, instructional technology, and assistive technology (see Table 5.1). Technology of teaching is typically devoid of tools or devices, as it refers to instructional techniques. Medical technology involves devices used to support and monitor a medical condition or one's health. Tools that help educators and students create products efficiently and effectively are considered productivity technologies. Information technologies involve tools that provide resources and access to information. Instructional technology involves hardware and software designed to support effective instruction to increase student learning. Finally, assistive technologies are tools and devices that support students with disabilities to access materials, increase independence, and experience an improved quality of life (Blackhurst, 2005b).

Table 5.1 Examples of Six Distinct Types of Educational Technology

Table 5.1 Examples of Six Distinct Types of Educational Technology

Technology of Teaching	Medical Technology	Productivity Technology	Information Technology	Instructional Technology	Assistive Technology
• Direct instruction • Inquiry	• Cochlear implants • Feeding tubes	• Word processor • Presentation tools (e.g., PowerPoint)	• The internet	• Computer-assisted instruction or apps • Smartboards	• Text-to-speech • Wheelchair

Source: Adapted from A. Blackhurst, “Perspectives on Applications of Technology in the Field of Learning Disabilities,” *Learning Disability Quarterly, 28*(2), 2005a, pp. 175–178.

Today’s students use many different types of educational technology.

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Assistive Technology

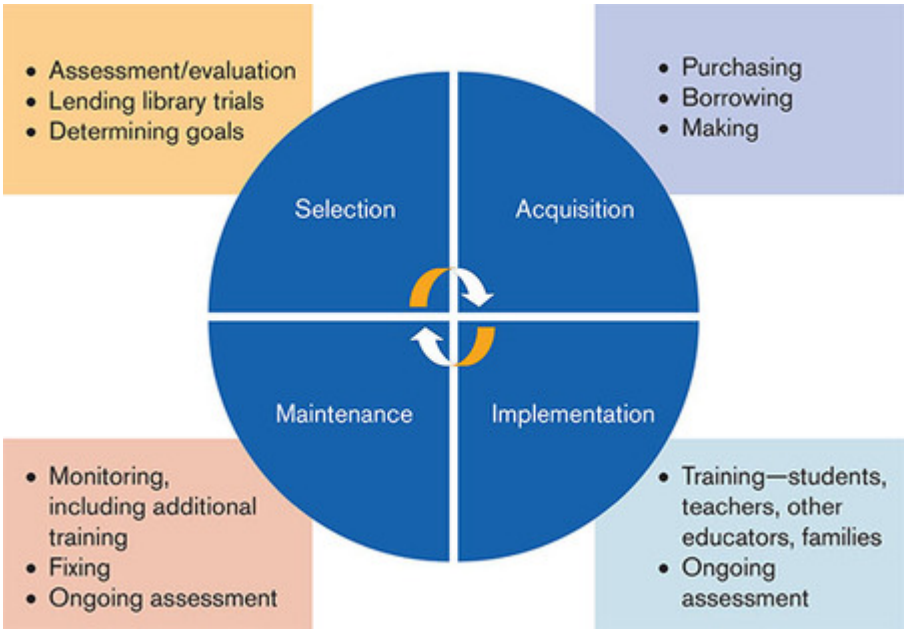
Assistive technology actually refers to devices *and* services, although most commonly people associate the term *assistive technology* with the tools or devices. An **assistive technology device** refers to "any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of a child with a disability" (Individuals with Disabilities Education Improvement Act of 2004, Section 300.5). An **assistive technology service**, as defined in Public Law (PL) 100–407, includes "any service that directly assists an individual in the selection, acquisition, or use of an assistive technology device." While devices are the tools and technologies that students use, assistive technology services are a necessary component and involve selecting (based on an evaluation of a student's assistive technology needs), acquiring, implementing, and maintaining devices (Parette, Peterson-Karlan, & Wojcik, 2005). Assistive technology services can be provided by an **assistive technology specialist**; however, these individuals may be infrequent within a school system. In that case, special education teachers, speech–language pathologists, occupational therapists, and/or instructional technologists may be responsible for providing assistive technology services (Edyburn, 2004; Marino, Marino, & Shaw, 2006). See Figure 5.1 for a diagram of assistive technology services.

assistive technology device Any item, piece of equipment, or product system that increases, maintains, or improves functional capabilities of individuals with disabilities.

assistive technology service Any service that directly assists an individual in the selection, acquisition, or use of an assistive technology device.

assistive technology specialist A person trained to provide assistive technology services to individuals with disabilities.

Figure 5.1 A Visual Depiction of Assistive Technology Services Provided by an Assistive Technology Specialist or Other IEP Team Member



History and Legislation of Assistive Technology

The previous definitions of assistive technology devices and services are found in IDEA 2004 (the Individuals with Disabilities Education Improvement Act) and PL 100–407, the 1988 Technology-Related Assistance for Individuals with Disabilities Act (also known as the "Tech Act"). The Tech Act was reauthorized in 1998 and again in 2004 as the Assistive Technology Act. However, actual use and legislation pertaining to the idea of assistive technology far predate the 1988 Tech Act. For example, in 1832, Louis Braille published the Braille code (Blackhurst, 2005a). Since then, we have seen the invention of electric amplifying devices for individuals with hearing impairments (1900), devices to magnify printed material (1953), and the talking calculator (1975), to name just a few (Blackhurst, 2005a; Nazzaro, 1977). In the 1970s, with the invention of the microcomputer, additional assistive technology became available to support students with disabilities, including text-to-speech (voice output of digital words so students can hear the text), **augmentative and alternative communication (AAC)** devices (low-tech, mid-tech, and high-tech communication tools that can replace, supplement, or enhance one's traditional means of communication), and speech-to-text (spoken words appearing as typed text on a computer-based technology) (Belson, 2003; Blackhurst, 2005a).

> **augmentative and alternative communication (AAC)** Symbols, aids, strategies, and techniques used as a supplement or alternative to oral language.

Legislation for assistive technology also predates the 1988 Tech Act. In 1879, following the invention of Braille, PL 45–186 was passed, which authorized funding for the production of Braille materials by the American Printing House for the Blind. In 1958, PL 85–905 provided funding to purchase and distribute closed-captioned films to state schools for the deaf. The Elementary and Secondary Education Act Amendments of 1968, PL 90–247, legislated the provision of educational technology for students with disabilities (Blackhurst, 2005a).

Assistive technology services are multifaceted, including evaluating the needs of students with disabilities.

iStock.com/FatCamera

However, much of what guides assistive technology today for students with disabilities comes from reauthorizations of the Individuals with Disabilities Education Act (IDEA). Although IDEA was initially passed in 1975 (PL 94–142), it was not until the 1990 reauthorization (PL 101–476) that assistive technology was included. The 1990 reauthorization of IDEA included the Tech Act definition of assistive technology as well as provided for assistive technology if the individualized education program (IEP) team determined it was needed (Smith & Jones, 1999). The 1997 reauthorization of IDEA mandated that IEP teams consider assistive technology for *all* students with disabilities, shifting the focus of assistive technology as primarily for students with more severe or low-incidence disabilities (for example, students with visual impairments or students with severe intellectual disability) to also include students with high-incidence disabilities, such as individuals with learning disabilities (Quinn et al., 2009; Smith & Jones, 1999).

The latest reauthorization of IDEA in 2004 upheld the mandate that IEP teams *consider* assistive technology for all students with disabilities and that, pending determination by the IEP team, the assistive technology be provided at no cost to the student (Lee & Templeton, 2008). However, there was one exclusion in IDEA 2004; surgically implanted assistive technologies (for example, cochlear implants) were omitted from the

definition of assistive technology. Consequently, schools are not required to pay for such devices (Zirkel, 2007). Related to assistive technology, IDEA 2004 included the National Instructional Materials Accessibility Standard (NIMAS), which stipulated students with **print disabilities**, commonly considered students with visual impairments and reading-based learning disabilities and sometimes particular physical disabilities, be provided with accessible instructional materials, such as large print, Braille, or digital text (National Center on Accessible Instructional Materials, 2011).

print disabilities Disabilities that prevent an individual from gaining information from printed material; require the use of alternative methods to access the material.

Assistive Technology Decision Making

As previously stated, assistive technology services provide for the consideration, selection, acquisition, and implementation of assistive technology devices and tools for students with disabilities. But how do IEP teams consider and select assistive technology for an individual student? While making an assistive technology decision can be challenging, given the range and types of tools and devices available, frameworks do exist to aid IEP teams in their decision-making progress. Perhaps the most well-known decision-making framework is the Student, Environments, Tasks, and Tools (SETT) framework by Joy Zabala (1995). (See Table 5.2 for assistive technology decision-making resources.) The SETT framework involves the identification and consideration of the student (for example, strengths, needs, and preferences), the environments in which the student functions, and the tasks the student is expected to perform. In other words, the tools selected need to match with the pupil, work within various environments, and adequately and appropriately address the student's tasks. The SETT framework is similar to the Matching Person and Technology (MPT) framework, which also suggests assistive technology devices or tools should match with the student (strengths, challenges, attitudes, and interests), work within the student's contexts, and fit the student's tasks (Bryant & Bryant, 2003; Raskind & Bryant, 2002; Scherer & Craddock, 2002).

Table 5.2 Resources for Assistive Technology Decision-Making Frameworks or Assessments

Table 5.2 Resources for Assistive Technology Decision-Making Frameworks or Assessments

Decision-Making Framework/Assessment	Resources
Student, Environments, Tasks, and Tools	www.joyzabala.com/Documents.html

Decision-Making Framework/Assessment	Resources
(SETT)	(Downloadable documents to assist in implementing the SETT framework)
Wisconsin Assistive Technology Initiative (WATI)	www.wati.org/?pageLoad=content/supports/free/index.php (Downloadable documents to assist in assistive technology decision making and assessments)
University of Kentucky Assistive Technology (UKAT) Toolkit	edsrc.coe.uky.edu/www/ukatii/ (Downloadable documents to assist in assistive technology decision making)
National Assistive Technology Research Institute (NATRI), Assistive Technology Planner	natri.uky.edu/atPlannermenu.html (Downloadable kit and documents to assist in assistive technology decision making)

Beyond the SETT and MPT, other grant-funded projects and initiatives created decision-making tool kits for IEP teams to use in considering and selecting assistive technology for individual students. For example, the Wisconsin Assistive Technology Initiative (WATI) created an assessment system to help IEP teams identify the types of technology that may benefit students with various disabilities, based on each student's abilities and challenges, environments, and tasks (Gierach, 2009). Lahm et al. (2002) developed the University of Kentucky Assistive Technology (UKAT) Toolkit, which provides resources in the form of worksheet-like pages to complete in order to guide an IEP team through assistive technology decision making. Lastly, the National Assistive Technology Research

Institute (NATRI) developed an assistive technology planner for use by teachers, parents, and students to actively participate in assistive technology planning and decision making on an IEP team (Bausch & Ault, 2008; Bausch, Ault, & Hasselbring, 2006).

When IEP teams are making assistive technology decisions, they may opt for a student to try out an assistive technology device or tool before recommending that the pupil use such assistive technology. IEP teams can take advantage of state lending libraries. For example, in the state of Indiana, the Promoting Achievement through Technology and Instruction for all Students (PATINS) Project (www.patinsproject.org) serves as the statewide technical assistance network for assistive technology. PATINS not only lends assistive technology to schools to aid in decision making but also provides educators in the state with professional development related to assistive technology through face-to-face conferences as well as online tutorials or webinars. We recommend that IEP teams consult their state assistive technology project for resources as well as devices and tools available through their lending libraries. (See Table 5.3 for examples of state programs.)

Table 5.3 Representative State Programs for Assistive Technology

Table 5.3 Representative State Programs for Assistive Technology

State	Statewide Assistive Technology Project
Alabama	STAR www.rehab.alabama.gov/individuals-and-families/star
Michigan	Alt+Shift www.altshift.education
Ohio	Assistive Technology & Accessible Educational Materials Center https://ataem.org/

State	Statewide Assistive Technology Project
Texas	Texas Assistive Technology Network (TATN) www.texasat.net

Assistive Technology and the IEP

As previously noted, IEP teams (and individualized family service plan teams for youngsters from birth to age 3) are required to consider assistive technology for all students with disabilities. Assistive technology is included within a student's IEP as appropriate. It can be represented in multiple ways—for instance, as a related service, as an accommodation, or as an annual goal or short-term objective, where appropriate (Netherton & Deal, 2006). Typically, however, assistive technology is selected and implemented to assist a student in meeting his or her goals. Hence, IEP teams may want to consider assistive technology toward the end of an IEP meeting (Carpenter, Johnston, & Beard, 2015). It is important for IEP teams to remember that if assistive technology devices or services are written into a student's IEP, it is the responsibility of the school to cover the costs. However, schools are not required to pay for all assistive technology (for example, surgically implanted assistive technology); hence, other outlets, such as private insurance, Medicare, Medicaid, or donations, are frequently used by families.

Assistive Technology Categorization

Assistive technology, by its definition in IDEA 2004, is vague and ambiguous. Broken down, assistive technology essentially is anything or can come from anywhere, as long as it helps or just maintains an individual's skills. Because assistive technology can be anything, it can be **instructional technology** (something that teachers use in the instruction of all students; for example, computer-based concept mapping and calculators), it can be everyday technology that is repurposed (for example, cell phones and iPads), and it can be specifically designed tools and devices (such as text-to-speech, speech-to-text, and AAC) (Bouck, Flanagan, Miller, & Bassette, 2012; Bouck, Shurr et al., 2012; Edyburn, 2004). In other words, the definition of assistive technology can leave one with two questions: "What isn't assistive technology?" and "When is something assistive technology?" (Edyburn, 2004).

> **instructional technology** Any apparatus or device that supports the teaching–learning process, such as computers or televisions; a tool for the delivery of instruction.

Given the questions surrounding what is and what is not assistive technology, a way to better understand assistive technology is through the different categorization schemes. One way in which assistive technology is often categorized is through the level of technology. While typically one conceptualizes assistive technology as low-tech (minimum technology) or high-tech (sophisticated technology), other conceptualizations also exist, including no-tech, low-tech, mid-tech, or high-tech as well as low-tech, moderate-tech (or mid-tech), or high-tech (Blackhurst, 1997; Carpenter et al., 2015; Edyburn, 2005; Vanderheiden, 1984). No-tech assistive technology most commonly refers to when no tool or device is actually used, but perhaps a teaching strategy is implemented, such as a mnemonic (Behrmann & Jerome, 2002; Blackhurst, 1997). Low-tech assistive technologies are generally tools or devices that are low in cost, require less training, and are typically not sophisticated (for example, pencil grips) (Behrmann & Schaff, 2001; Blackhurst, 1997). Moderate- or mid-tech

assistive technologies are then typically tools or devices that are battery operated; the technology is more sophisticated, may require more training, and has a higher cost than low-tech assistive technology (for example, a calculator). Finally, high-tech assistive technologies are sophisticated devices and tools and are commonly associated with computer-based technology. High-tech assistive technologies are considered to have a higher cost and require more training (for example, text-to-speech) (Blackhurst, 1997; Carpenter et al., 2015; Edyburn, 2005; Vanderheiden, 1984). See Table 5.4 for examples of assistive technology devices according to categorization.

Another way assistive technology can be categorized is by purpose. Bryant and Bryant (2003) suggested seven purposes for assistive technology: positioning, mobility, augmentative and alternative communication, computer access, adaptive toys and games, adaptive environments, and instructional aids. Likewise, the WATI suggested fourteen categories for assistive technology: seating, positioning and mobility, communication, computer access, recreation and leisure, activities of daily living, motor aspects of writing, composition of written material, reading, mathematics, organization, vision, hearing, and multiple challenges (Gierach, 2009). See Table 5.5 for examples of assistive technology devices by purpose. Overall, these categorizations suggest assistive technology can meet a wide range of needs for a diverse population of students with disabilities.

Table 5.4 Examples of Assistive Technology Devices by Categorization

Table 5.4 Examples of Assistive Technology Devices by Categorization

No-Tech	Low-Tech	Mid-Tech	High-Tech
• Mnemonics (HOMES for remembering the names of	• Pencil grips • Raised lined paper	• Calculators • Audio recorders • Switches	• Speech-to-text • iPad and apps

No-Tech	Low-Tech	Mid-Tech	High-Tech
the Great Lakes) • Graphic organizers	• Highlighter strips • Braille playing cards		• Word prediction

Table 5.5 Example Assistive Technology Devices by Purpose

Table 5.5 Example Assistive Technology Devices by Purpose

Purpose	Wisconsin Assistive Technology Initiative (WATI) Categories	Examples
Positioning	Seating, positioning, and mobility	• Adjustable-height desks • Custom wedges
Mobility		• Wheelchair • Gait trainer
Augmentative and alternative communication	Communication	• Picture Exchange Communication System® • Proloquo2Go® for iPod, iPad
Computer access	Computer access	• Alternative keyboard

Purpose	Wisconsin Assistive Technology Initiative (WATI) Categories	Examples
		• Speech/voice recognition
Adaptive toys and games	Recreation and leisure	• Switch-operated battery toys • Larger or Braille playing cards
Adaptive environments	Activities of daily living	• Adapted utensils, bowls, and cups • Motion-controlled lights
Instructional aids	Motor aspects of writing	• Speech-to-text • Pencil grips
	Composition of written material	• Word prediction • Portable spell checker
	Reading	• ReadingPen • E-text or supported e-text
	Mathematics	• Concrete or virtual manipulatives

Purpose	Wisconsin Assistive Technology Initiative (WATI) Categories	Examples
		• Calculator
	Organization	• WatchMinder® • Picture schedule
	Vision	• Text-to-speech • Screen magnification
	Hearing	• FM system • Hearing aid

Source: AssistiveWare®, www.assistiveware.com; E. Bouck and S. Flanagan, "Assistive Technology and Mathematics: What Is There and Where Can We Go," *Journal of Special Education Technology, 24*(2), 2009, pp. 17–30; D. Bryant and B. Bryant, *Assistive Technology for People With Disabilities* (Boston, MA: Allyn & Bacon, 2003); J. Gierach, *Assessing Students' Needs for Assistive Technology*, 5th ed. (Milton: Wisconsin Assistive Technology Initiative, 2009); L. Carpenter, L. Johnson, and L. Beard, *Assistive Technology: Access for All Students*, 3rd ed. (Upper Saddle River, NJ: Pearson Education, 2015).

Devices and Tools

Assistive technology is central to the education of students with disabilities. Each chapter in Part 2 of this book examines assistive technology tools and devices that are unique or commonly used by individuals with a specific disability, such as an AAC device for pupils with speech and language impairments or various sound amplification systems for students with hearing impairments. We now focus our attention on assistive technology within content-specific domains, as well as other organizational capabilities for students with high- and low-incidence disabilities. In addition, we touch upon assistive technology for young children with disabilities and the association between universal design for learning (UDL) and assistive technology.

First Person: Matthew Teaching in the Age of Technology

Since graduating with my bachelor's degree in special education, I have worked at an alternative school. My school is a state-accredited residential and day school program that serves students between the ages of 6 and 21 who have learning disabilities and/or emotional behavior disorders and who struggle in a typical school setting, as well as students with intellectual disability and students with autism spectrum disorder. Our students with learning disabilities and/or emotional behavior disorders are not reading or writing at grade level. For our older students who still struggle with handwriting, pencil grips or weighted pencils are available. I do see pencil grips benefiting my students. For our younger students who struggle with reading, we take advantage of books on CD or electronic books played through an MP3 player. In my school, we have advanced technology to support students with more intense needs as well. Every classroom has an iPad, and we use Proloquo2Go® for students with communication needs. Most of our assistive technology needs and decisions for individual students are determined by our occupational therapists or speech–language pathologists.

—Matthew Wright

Program Coordinator

T. C. Harris School

Lafayette, Indiana

Reading

Reading is a fundamental but complex skill and often considered the most critical academic skill (Strangman & Dalton, 2005). In 2000, the National Reading Panel suggested reading instruction should consist of five areas: phonemic awareness, phonics instruction, fluency, vocabulary, and reading comprehension. Despite its value, reading is an area of struggle for many students, with varying statistics presenting the frequency of struggling readers, let alone students with disabilities. The most recently available data from the National Assessment of Educational Progress (NAEP), which assesses reading at Grades 4 and 8, suggest students with disabilities are faring poorer than their peers without disabilities. The average score in reading for fourth graders with disabilities was 187—below the basic level—and the average score for fourth graders without disabilities was 227, which is between basic and proficient. Similar results are found for eighth graders: The average score was 232 (below basic) for pupils with disabilities and 271 (between basic and proficient) for those without disabilities (National Center for Education Statistics, 2017). Given the challenges reading can pose, it is important to consider how technology can support these students. See Table 5.6 for examples of assistive technology used for instruction in the various content areas.

Table 5.6 Assistive Technology Examples for Content-Area Instruction

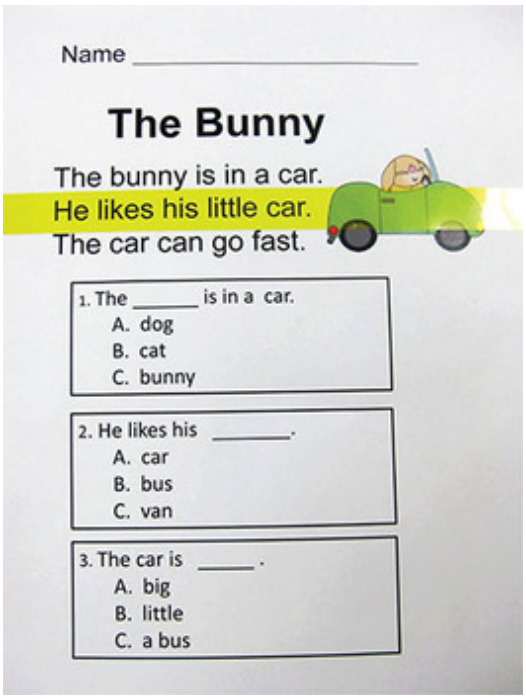
Table 5.6 Assistive Technology Examples for Content-Area Instruction

	Low-Tech	Mid-Tech	High-Tech
Reading	• Highlighter strips or tape • Picture symbols	• ReadingPen • Books on CD	• Text-to-speech • E-readers or supported e-text

	Low-Tech	Mid-Tech	High-Tech
Writing	• Pencil grips • Raised lined paper	• Handheld spell checkers • Portable word processors	• Speech-to-text • Word prediction
Mathematics	• Concrete manipulatives • Number lines • Graph paper	• Calculators (e.g., four-function, graphing)	• Virtual manipulatives • Computer-assisted instruction or apps

Low-Tech Reading Assistive Technology. When deciding on assistive technology, IEP teams should always first consider low-tech, of which there are a number of options for reading. There is not always a research base, however, on using the tools and devices for students with disabilities. Some common low-tech reading-based assistive technologies include highlighter pens, highlighter tape (nonpermanent), and highlighter strips—strips of colored, transparent film that students can use to guide their reading. Another low-tech means for providing support for reading is the placement of picture symbols in written text to provide additional support for comprehension (Shurr & Taber-Doughty, 2012).

Highlighter strips can serve as a low-tech assistive technology for students with reading difficulties.



Courtesy of Anne Gardner, NBCT, at http://commoncoreconnectionusa.blogspot.com/.

Mid- and High-Tech Reading Assistive Technology. Many mid-tech and high-tech assistive technology devices and tools exist. Perhaps one of the most common technologies to consider for students who struggle with reading is text-to-speech. Text-to-speech, known by different names depending on its application (for example, screen readers when accessing text on a computer, or e-text) (Anderson-Inman & Horney, 2007), is essentially printed or digital text spoken aloud to the reader; in other words, there is a voice output. Not only did the National Reading Panel (2000) suggest text-to-speech as a promising intervention, but researchers found use of text-to-speech positively influenced decoding, fluency, and comprehension skills (Hasselbring & Bausch, 2005; King-Sears, Swanson, & Mainzer, 2011). However, a research meta-analysis—or synthesis of the research—on text-to-speech or associated tools to support read-aloud accommodations for students with disabilities suggested such technology aids in reading comprehension (Wood, Moxley, Tighe, & Wagner, 2018).

Many different types of text-to-speech options exist. For example, there is the ReadingPen 2, a handheld optical character recognition system that reads printed text as the device scans it (another example is Quicktionary2) (Schmitt, McCallum, Hennessey, Lovelace, & Hawkins, 2012; Schmitt, McCallum, Rubinic, & Hawkins, 2011; WizcomTech, 2013, 2019). A number of computer-based text-to-speech programs exist, including both free and for-purchase options. One free option, although one can also purchase its upgraded features, is NaturalReader (www.naturalreaders.com) (NaturalSoft Limited, 2019). NaturalReader is a downloadable option that provides natural-sounding voices and also highlights the text as it is read on Word documents, websites, PDFs, and emails on both PCs and Mac computers. Students can adjust the volume and pace of a voice even with the free version. Other free text-to-speech programs include browser-specific options, such as SpeakIt! for Google Chrome (2019). For-purchase text-to-speech programs also exist, such as Read&Write. The program provides auditory text with simultaneous text highlighting on a computer; this can be done via purchasing an application or adding an extension to one's browser. There is also a free iPad version (Texthelp, 2019).

Closely related to text-to-speech is **e-text** or **supported e-text**. E-text is electronic text, and supported e-text is enhanced e-text, which includes such additional features to benefit students as linked dictionaries (Anderson-Inman & Horney, 2007). Use of e-text is related to the NIMAS, which mandated that students with print disabilities receive access to accessible text, including digital text (National Center on Accessible Instructional Materials, 2011). Several specifically designed e-text readers were developed following NIMAS, which supported a file format referred to as Digital Accessible Information System (DAISY) Digital Talking Books. ReadHear™, by gh, LLC, is one such technology. ReadHear™ offers many of the same features as text-to-speech programs, including synthesized speech and text highlighting. It also offers magnification and can be used through keyboard shortcuts for individuals with visual impairments. In addition, commercially available products, such as Kindle, Nook, and iPad, are becoming increasingly popular for providing e-text to students (Larson, 2010). However, not all e-readers meet the accessibility needs of all pupils, such as students with visual impairments. If a student does use an e-reader,

he or she can acquire text from multiple places, including Amazon.com and other online sellers (for example, Barnes & Noble), as well as take advantage of free e-books, including those from iTunes, Bookshare (www.bookshare.org), and Project Gutenberg (www.gutenberg.org).

e-text An electronic presentation of a text, also known as a digital text, that can be read on a computer.

supported e-text An e-text that allows for content to be presented in multiple modalities while providing additional supports.

Writing

Writing is another critical skill, but it often gets less attention than reading (National Commission on Writing for America's Families, Schools, and Colleges, 2005). Writing is complex and multifaceted, involving not just technical elements like handwriting and spelling but also the processes of planning and organizing, generating and drafting text, and then editing and revising (Flower & Hayes, 1981). All of these components, from handwriting to planning to writing to revising, can cause challenges for students with disabilities (Mason, Harris, & Graham, 2011). Data from a NAEP writing assessment suggest students with and without disabilities struggle with writing (National Center for Education Statistics, 2012). The 2011 assessment found only 27 percent of eighth- and twelfth-grade students were above a basic level (that is, proficient or advanced), meaning almost three-fourths of students in each grade were at a basic or below-basic level. The data were not disaggregated for students with disabilities.

No- and Low-Tech Writing Assistive Technology. Many low-tech assistive technologies exist to support students with writing (see Table 5.4, page 130). For example, pencil grips and adaptive pens can help students with handwriting issues. Teachers can also use raised lined paper (a student can feel the lines of the paper), whiteboards, gel boards, and even shaving cream. Outside of the technical elements, no- and low-tech strategies can assist with the writing process. Advanced organizers such as procedural facilitators, graphic organizers, concept maps, and think sheets have a strong research

base in terms of helping students with and without disabilities plan and organize their writing (Englert, Zhao, Dunsmore, Collings, & Wolbers, 2007). Whether using the advanced organizer–based acronym POWER—planning, organizing, writing, editing, and revising (Mariage, Englert, & Garmon, 2000)—or the hamburger paragraph organizer—in which the top bun serves as a topic or main sentence; the meat, lettuce, and tomato function as supporting sentences; and the bottom bun is a concluding sentence (Mariage & Bouck, 2004)—these tools help students to structure their writing for improvement in quality and quantity.

Pencil grips can serve as a low-tech writing-based assistive technology to support students with disabilities.

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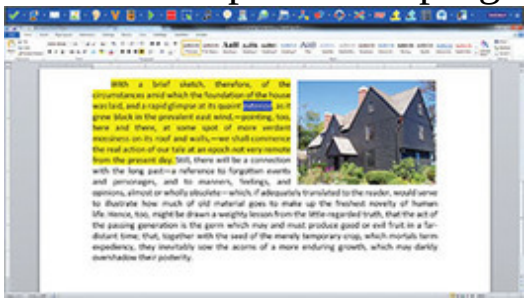
Mid- and High-Tech Writing Assistive Technology. A number of mid-tech and high-tech technologies exist to support the writing process as well as the technical components of handwriting and spelling. For the prewriting portion of the writing process, planning and organizing, students can use computer-based concept mapping programs, such as the for-purchase Inspiration and Kidspiration (Inspiration Software, 2019a, 2019b) or the free options CmapTools (Institute for Human & Machine Cognition, 2019) and Visual Understanding Environment (Tufts University, 2019). Closely related to concept maps are mind maps. Such free and for-purchase mind map options include MindMeister (MeisterLabs, 2019) and bubble.us (LKCollab, LLC, 2019). Many of these technology-based concept map and mind map programs are available to download for computers, to use online with

computers, or to use as an app on tablets or other mobile devices. Computer-based concept maps are similar to paper-based concept maps, although students can edit more easily with the computer-based bubble.us options. In addition, some computer-based concept mapping programs come equipped with pictures to help students represent their ideas with images as well as words, and others include such built-in assistive technologies as text-to-speech and speech-to-text.

When writing or drafting, students can use a range of assistive technologies, including technology to actually get words on the paper as well as technology to select correct words. Speech-to-text—also known as speech or voice recognition—is a computer-based program that translates the words a user says to typed text (Batorowicz, Missiuna, & Pollock, 2012; MacArthur, 2009). In other words, speech-to-text can create Word documents, emails, and other digital documents from narrated speech rather than keystrokes. Common speech-to-text programs are associated with a fee, such as Dragon NaturallySpeaking (Nuance Communications, 2019) for PCs or Macs. However, some free options exist. Windows operating systems also come standard with Windows Speech Recognition, which can recognize voices and translate narration into text in different programs (Microsoft Windows, 2019). Likewise, Mac computers with the Mountain Lion and later operating systems also come standard with an easy-to-use speech-to-text program known as Dictation (Apple, 2019). Users should note that using speech-to-text programs may require training, and typically programs become better at recognizing one's speech the more they are used.

Read&Write is one example of a text-to-speech and speech-to-text word prediction program.



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Aside from speech-to-text, word prediction is another computer-based program that supports students in writing text. Word prediction programs predict what word an individual is typing, based on the letters, and provide suggestions (for example, as one types *h-o*, a word prediction program might suggest *home*, *house*, and *hole*) (MacArthur, 2009). Nowadays, word prediction is available on almost every device (Martin, 2014–2019). However, for-purchase options exist, such as Co:Writer (Don Johnston, 2019), which is compatible with both PC and Mac computers and can also be an app for a tablet or a Chromebook app.

In terms of postwriting, students can use text-to-speech to receive auditory feedback on their writing as well as spelling and grammar check programs. The text-to-speech program NaturalReader can be used to support a student's editing and revising through reading the text the student transcribed into the computer. Obviously, students can use the built-in spell-check programs with their word processing software, such as Microsoft Word. However, other free or for-purchase programs may provide additional support. For example, Ginger Software (2019) is a spelling- and grammar-check program that suggests different words when a word is grammatically correct and spelled correctly but out of context (for instance, with "I would like to *meat* her," Ginger would suggest "I would like to *meet* her"). Grammarly (2019) is also an option that supports grammar checking, and both can be added to the browser Chrome.

Several computer-based programs exist to support the writing process; however, having many separate programs to support a pupil across planning and organizing through editing and revising can be overwhelming to the student as well as the teacher. For-purchase options do exist to support multiple needs, such as speech recognition, word prediction, and grammar checking. Two such options include Read&Write (Texthelp, 2019) and WordQ (Quillsoft, 2019). Read&Write provides reading as well as writing support, including word prediction, speech recognition, text-to-speech, and grammar assistance (for example, checking verb tenses and homophones). Read&Write is available for Windows- and Mac-based operating systems, iPad and Android mobile devices, and a Chrome extension. The

downloadable program WordQ, which is Windows and Mac compatible, combines text-to-speech and word prediction with speech-to-text (though the add-on program, SpeakQ, is compatible with Windows only).

Not all mid-tech and high-tech assistive technologies to support writing are computer based. Students can also benefit from portable word processors, although with the access to other affordable options (for example, tablets and Chromebooks), fewer portable word processor options exist. Portable word processors are battery-powered tools that include standard keyboards but smaller screens and focus on word processing features or productivity tools like PowerPoint as opposed to accessing the internet and running separate programs. However, as noted, Chromebooks, iPads, and other tablets allow students to engage in portable word processors at a cheaper price than a laptop or desktop computer, but also allow students to engage with other applications (that is, apps).

Mathematics

Mathematics can be a challenging content area for students with and without disabilities, although individuals with disabilities often lag behind their peers in terms of mathematics. The challenges students face range from fluency with basic facts to problem solving to fractions to algebra (Calhoon, Emerson, Flores, & Houchins, 2007). The most recently available NAEP mathematics assessment data support the challenge mathematics can pose to pupils with disabilities (National Center for Education Statistics, 2017). The average score for fourth-grade students without disabilities was 243, which was just below proficient on the NAEP scale of basic, proficient, and advanced. The average score for fourth-grade students with disabilities was 214, which is the cut-off level for the basic category. Similar results were found for eighth-grade students: the average score for students with disabilities was 247—below the basic level (262)—and the average score for pupils without disabilities was 288, which was between basic and proficient (299).

No- and Low-Tech Mathematics Assistive Technology. Although fewer specifically developed technology options exist to support students with

disabilities in mathematics in comparison to reading and writing, a number of technologies are available (Edyburn, 2004). (See Table 5.4, page 130.) One of the most common low-tech assistive technologies for mathematics is concrete manipulatives. Concrete manipulatives are typically found in elementary and secondary classrooms and are considered an evidence-based practice for educating students with disabilities. Students with disabilities successfully solved a range of mathematics problems—algebra, integers, area and perimeter, and fractions—with concrete manipulatives (for example, base 10 blocks, algebra tiles, tiles, and fraction blocks) (Cass, Cates, Smith, & Jackson, 2003; Jordan, Miller, & Mercer, 1998; Maccini & Hughes, 2000; Maccini & Ruhl, 2000).

Mid- and High-Tech Mathematics Assistive Technology. In terms of mid-tech or high-tech assistive technology, common options include calculators, virtual manipulatives, anchored instruction, and computer-assisted instruction or apps (Bouck & Flanagan, 2009). Research on these areas suggests technology benefits students with disabilities, although most of the research involved pupils with more high-incidence disabilities like individuals with learning disabilities (Bouck & Flanagan, 2009; Maccini & Gagnon, 2005). Calculators—four-function, scientific, graphing, and online—are one of the most common accommodations for students with disabilities on IEPs (Maccini & Gagnon, 2000, 2006). Calculators can help students with disabilities who struggle with basic facts or working memory challenges when solving word problems. Virtual manipulatives are similar to concrete manipulatives but available on a computer or mobile device through an app. In fact, almost every concrete manipulative is also available as a virtual manipulative that can do everything concrete manipulatives do but in a virtual space (that is, on a computer or mobile device via an app). The most well-known virtual manipulative website is the National Library of Virtual Manipulatives (Cannon, Dorward, Duffin, & Heal, 2004). However, other sites, such as Illuminations by the National Council of Teachers of Mathematics (2019) and Inter*activate* by the Shodor Education Foundation (2019), also exist (Bouck & Flanagan, 2010). Of course, now a common means of delivering virtual manipulatives is through apps for mobile devices (for example, iPads or Chromebooks). Multiple options exist for app-based virtual manipulatives. One company that offers a wide range of virtual

manipulatives for Chromebooks, online, and in apps for tablets is Brainingcamp (see www.brainingcamp.com).

Anchored instruction and computer-assisted instruction (CAI) are less *assistive* and more *instructional* technologies that support students with and without disabilities in mathematics. Anchored instruction involves an alternative presentation (for example, CD-ROM) of a mathematics lesson or problems situated in real-world contexts. The majority of the work on anchored instruction for students with disabilities is led by Brian Bottge, and the research base supports the view that this technology helps students with disabilities in problem solving. In contrast to anchored instruction, the majority of CAI for students with disabilities in mathematics focuses more on basic facts than problem solving and is administered individually rather than in groups. However, the research on mathematics-based CAI is also generally positive (Bouck & Flanagan, 2009). As mobile devices increase in popularity and access, CAI has emerged into apps for mobile devices. Although many apps focus on more basic facts, there are some apps for tablets or Chromebooks that support more conceptual understanding of mathematics.

Other Academic and Functional Performance Areas

Outside of the two main content areas in which students with disabilities struggle, literacy and mathematics, other content domains and academic or functional performance areas can be supported through assistive technology. Although limited, some assistive technology exists in the areas of science and social studies; however, the majority of the assistive technology for these two content areas can be drawn from literacy and mathematics. Assistive technology can also benefit the instruction of life skills, and specific tools and devices exist that can increase, maintain, or improve the capabilities of students relative to study skills like note-taking and organization.

First Person: Whitney Teaching in the Twenty-First-Century Classroom

I work in a secondary life skills classroom and have obtained my bachelor's degree in special education. I have technology available, including a smartboard in my classroom and two iPads to use at my discretion.

Individual students also have a range of assistive technology, including augmentative and alternative communication devices. One technology I have increasingly incorporated into my life skills instruction is actually an audio recorder to provide audio prompts to students as they engage in life skills in the community independently, such as grocery shopping. I found an inexpensive audio recorder is more age-appropriate and promotes independence more than picture prompts. I—or the students—can record our grocery list, and then during our weekly outing to the local grocery store to purchase items we use in the classroom, such as for cleaning, hygiene, or cooking, students use the audio recorders to prompt them on the list. The audio recorders have increased my students' independence.

—Whitney Bartlett

Special Education Teacher

Lafayette, Indiana

Science and Social Studies. Although not exclusively, science and social studies instruction is often dominated by textbooks and other literacy-based activities, including reading and writing (Scruggs, Mastropieri, & Okolo, 2008). Hence, many of the assistive technologies discussed to support students with disabilities in reading and writing (such as text-to-speech and speech-to-text) are also applicable to support students with disabilities in engaging the content areas of science and social studies. One science assistive technology product to note is Science Writer by the Center for Applied Special Technology (2009). Science Writer supports secondary students as they construct science reports in terms of both writing and text-to-speech so pupils can listen to what they have written. Science Writer is offered online at no cost.

Life Skills. Assistive technology can also help students learn life skills such as grocery shopping and food preparation. One particular category of assistive technology, self-operating prompting devices, supports students with disabilities in the acquisition of life skills. Students with intellectual disability, autism spectrum disorders, and other disabilities use such technology (for example, picture prompts, audio recorders, video iPods, or

iPads) to learn life skills (Ayres, Mechling, & Sansosti, 2013; Mechling, 2007).

WatchMinder is an assistive technology device that can provide prompts to students to assist with organization.

WatchMinder is the Registered Trademark of Laurence D. Becker, PhD.

Organization and Management Skills. Executive functions, such as organization and memory, as well as self-management skills, can be beneficial to students with disabilities, who often struggle with these areas. Teachers suggest a relationship between such executive functions (for instance, meeting deadlines, following directions, or being prepared) and academic performance (McMullen, Shippen, & Dangel, 2007). Multiple low-tech through high-tech options exist to support students with disabilities in organization and self-management. Students can use common technologies such as audio recorders and other handheld devices (smartphones) to record reminders for themselves or to serve as an alarm. Specifically designed technologies for these purposes also exist, such as the WatchMinder (2019), a programmable sports watch that can set thirty alarms (for example, “study for test” or “take medication”) and has sixty-five preprogrammed messages.

Technology can also assist students with disabilities in note-taking. One common technology marketed to support anyone with note-taking is a Livescribe™ smartpen. With a Livescribe™ pen, when a student writes on the specifically designed paper, he or she is not only taking written notes but can also record the conversations or lectures occurring. If a student wants to

go back to his or her notes, when the student taps on a specific place on the paper, the audio will actually play from that point. The Livescribe™ pen is also only slightly larger than a typical pen. Apps for mobile devices also exist that offer features similar to those of a Livescribe™ pen. Two popular note-taking-based apps are Notability by Ginger Labs (2019) and Evernote (2019).

Assistive Technology and the Young Child

As previously noted, assistive technology considerations are mandated for children served under IDEA. Hence, assistive technology considerations also apply to children from birth until age 3 who are served via an individualized family service plan. While many of the assistive technology devices and tools discussed in the following chapters are applicable to young children, there are some unique assistive technology considerations. Adaptive toys and games represent one category of assistive technology (Bryant & Bryant, 2003). For example, battery-operated toys can easily be modified to work with a switch through acquisition of a copper wafer. In addition, companies are increasingly creating accessible or adaptive toys for young children, such as triangular crayons, crayon rocks, or crayons with knobs for better grasping. Young children can also take advantage of adaptive utensils or other dishes. In addition, young children are prime candidates for repurposing everyday technology and items to be assistive technology, such as a Hula-Hoop to keep objects within grasp or a cookie sheet with objects affixed with magnets.

Issues With Assistive Technology

Although assistive technology offers much potential for students with disabilities, there are challenges with assistive technology that educators need to take into consideration. Despite the benefits of assistive technology, the use of various tools and devices may stigmatize some pupils. This occurs when individuals use a technology in a general education classroom that makes them stand out or makes them feel as if they do (Parette & Scherer, 2004). For example, if a student struggles to read independently but is the only one in the class reading on a computer, he or she may feel that use of the technology is stigmatizing. Avoiding **stigmatization** in the selection of assistive technology is important, as feeling different can lead to assistive technology **abandonment**, whereby the pupil quits using the tool. Hence, when the IEP team members consider the use of assistive technology, it is important that they also examine the student's interests, attitudes, and sense of self-confidence as well as the context in which the assistive technology will be used.

stigmatization To experience undesired negative attention due to using assistive technology.

abandonment When an individual stops using an assistive technology device.

Table 5.7 Free Assistive Technology Examples: Software and Apps

Table 5.7 Free Assistive Technology Examples: Software and Apps

	Literacy	Mathematics

	Literacy	Mathematics
Software/internet-based	• NaturalReader (text-to-speech) • TalkTyper (speech-to-text)	• National Library of Virtual Manipulatives (virtual manipulatives)
Mobile technology apps	• NaturalReader (text-to-speech) • Spell Better (word prediction and text-to-speech)	• Photomath (scan a problem and the app solves it) • MathSquared (logical thinking and reasoning)

Assistive technology allows children to engage with a variety of toys.

AbleNet. Reproduced with permission.

Another important issue for assistive technology is ensuring that all parties receive adequate training or possess sufficient knowledge to correctly

implement the technology. The use of technology can be overwhelming to many individuals, including students, teachers, related service providers, and parents. To help ensure successful assistive technology implementation and minimize abandonment, students, teachers, other educators, *and* parents need to receive training on how to use the tool as well as how to support the individual in using the tool (Lee & Templeton, 2008). Some school districts may have assistive technology specialists to support the implementation and training of assistive technology devices; however, in other situations, professionals and parents may have to rely on instructional technologies, occupational therapists, or special education teachers for support and training (Bausch, Ault, Evmenova, & Behrmann, 2008).

Cost is another challenge with assistive technology, although cost cannot explicitly be a decision-making factor (Bryant & Bryant, 2003). Assistive technology devices can run the gamut in terms of cost from free to expensive. See Table 5.7 for examples of free or low-cost assistive technology software and apps. Another consideration besides cost, stigmatization, and training issues is to repurpose everyday technology, such as iPads or Livescribe™ pens, as assistive technology tools for students with disabilities (Bouck, Shurr et al., 2012).

Assistive Technology Future Trends

Assistive technology represents an important component of the educational services received by individuals with disabilities. Assistive technology benefits the students who need it and can help them access and succeed in the general education curriculum as well as daily living skills (for example, communication and independent living). In addition, assistive technology is one aspect that can support the implementation of **universal design for learning (UDL)**, introduced in Chapter 1. Assistive technology can support the multiple means of engagement and expression that are critical for UDL. Assistive technology also allows for the flexibility principle of UDL to occur in classrooms.

> **universal design for learning (UDL)** The design of curriculum materials, instructional activities, and evaluation procedures that can meet the needs of learners with widely varying abilities and backgrounds.

Many assistive technologies can be used to support UDL. The Center for Applied Special Technology (CAST), for instance, has developed specific technologies in support of UDL (see www.cast.org/whats-new/learning-tools.html#.XUObzHt7nyU). For example, CAST offers the UDL Book Builder™ (http://bookbuilder.cast.org), which allows educators to create digital or eBooks to share with students. The digital books developed through this program can be embedded with characters that provide prompts and scaffolds to aid in comprehension. The digital books are also equipped with text-to-speech software. CAST also offers two mathematics-based apps to support students in mathematics reasoning: MathSquared and MathScaled (both available for download through iTunes). Aside from student-centered UDL products, CAST offers products geared toward teachers to support the implementation of UDL in classrooms, such as the UDL Exchange (http://udlexchange.cast.org/home) and the UDL Curriculum Self-Check (http://udlselfcheck.cast.org).

In addition to even greater attention to assistive technology as a predicted future trend, assistive technology tools and devices are likely to follow the trend of all technology: mobile, personalized, smaller, and faster (Bolkan, 2012). In other words, mobile devices—such as iPads and smartphones and their apps—will be increasingly used as assistive technology (see Table 5.8 for examples of apps for different purposes of assistive technology). Hence, students may increasingly use iPads and, for example, text-to-speech, speech-to-text, and AAC apps to participate in curriculum and everyday life activities. With the likely increase in mobile devices and apps to provide assistive technology, as well as instructional technology, teachers and other education professionals will need to become savvy consumers. In other words, educators need to think critically about apps and to validate their educational use, including those used for assistive technology purposes.

Table 5.8 Example Apps by WATI Assistive Technology Purpose

Table 5.8 Example Apps by WATI Assistive Technology Purpose

Select Wisconsin Assistive Technology Initiative (WATI) Categories	Examples of Apps
Communication	• Proloquo2Go® (iOS) • Scene Speak (iOS)
Computer access	• Dvorak keyboard (iOS and Android) • SwiftKey (iOS)
Activities of daily living	• Photos (iOS) • Movies (iOS)

Select Wisconsin Assistive Technology Initiative (WATI) Categories	Examples of Apps
Motor aspects of writing	• Dragon Anywhere (iOS)
Composition of written material	• NaturalReader (iOS)
Reading	• Bookshare’s Go Read (Android) or Read2Go (iOS)
Mathematics	• Photomath • Brainingcamp apps (e.g., Algebra Tiles, Base Ten Blocks) (iOS)
Organization	• Notability • Reminder (iOS) • RE.minder (iOS)
Vision	• Color ID (iOS) • NantMobile Money Reader (iOS)
Hearing	• FaceTime (iOS) • Sign 4 Me (iOS)

Although a standard rubric or model does not exist for evaluating apps for mobile devices for all students, let alone students with disabilities, some options do exist. For example, the website Learning in Hand (learninginhand.com/blog/ways-to-evaluate-educational-apps.html) offers a variety of rubrics educators can use to make decisions about apps. Educators need to think critically about the apps they are using; for example, some apps are free while others are not. Prices can vary from $0.99 to $210. There is not necessarily a correlation between the cost of an app and its quality. Although the education and special education lists on iTunes offer educators one place to start, these lists should not be taken at face value. Nor should internet-based lists of apps for particular topics in special education (for example, functional life skills) be used without scrutiny. Educators need to read each app's description as well as carefully consider the reviews. Although apps can benefit students with disabilities, as assistive and instructional technologies they can do so only if careful attention is given to their selection and implementation, which can be time-consuming.

Chapter in Review

Technology in Education (Learning Objective 5.1)

- Multiple types of educational technology exist, including assistive technology.

Assistive Technology (Learning Objective 5.2)

- Assistive technology devices are *anything* that can benefit a student with a disability.
- Assistive technology services are services that support the selection, acquisition, implementation, and maintenance of assistive technology tools and devices.
- Assistive technology can be categorized by levels of technology, including no-tech, low-tech, mid-tech, and high-tech.
- Assistive technology can also be categorized by purpose, such as positioning, mobility, augmentative and alternative communication, computer access, adaptive toys and games, adaptive environments, and instructional aids.

History and Legislation of Assistive Technology (Learning Objective 5.3)

- Assistive technology was first included in the 1990 reauthorization of IDEA, although development and use of assistive technology by students with disabilities predate its inclusion in the 1990 authorization of IDEA by more than a century.
- The 1997 reauthorization of IDEA mandated the consideration of assistive technology for *all* students with disabilities, including students with high-incidence disabilities.

Assistive Technology Decision Making (Learning Objective 5.4)

- Frameworks exist to support assistive technology decision making by IEP teams, including the SETT framework.
- Within an IEP, assistive technology supports goals and short-term objectives as a related service or accommodation.

Assistive Technology Devices (Learning Objective 5.5)

- Multiple low-tech (highlighter strips) and high-tech (text-to-speech) assistive technologies exist to support students in reading.
- Challenges with handwriting, spelling, and the writing process can be supported through low-tech (pencil grips) and high-tech (speech-to-text and word prediction) assistive technology.
- In mathematics, low-tech (concrete manipulatives), mid-tech (calculators), and high-tech (virtual manipulatives) technologies all can support students with disabilities.
- Assistive technology devices also support students in organization (Livescribe™ pens) as well as other executive functions, such as attention or memory (WatchMinder).

Assistive Technology Issues (Learning Objective 5.6)

- Assistive technology abandonment is a concern for students with disabilities.
- To minimize abandonment, IEP teams need to consider the potential stigmatization associated with use of devices or tools and ensure that students, teachers, other educators, and parents all receive the training to use the technology.

Assistive Technology Future Trends (Learning Objective 5.7)

- Assistive technology represents one way to implement universal design for learning in practice.
- Mobile devices and their apps are increasingly used as assistive technology; educators need to critically evaluate apps for their educational value.

Study Questions

1. How does educational technology differ from assistive technology?
2. What is the difference between assistive technology devices and assistive technology services?
3. Who provides assistive technology services?
4. Describe the different levels of assistive technology and provide an example of each.
5. Identify the seven different purposes of assistive technology and give an example of each type.
6. What can IEP teams use to aid in assistive technology decision making?
7. What can schools and school personnel do to avoid assistive technology abandonment?
8. What is the relationship between assistive technology and universal design for learning?

Key Terms

educational technology, 125
assistive technology device, 126
assistive technology service, 126
assistive technology specialist, 126
augmentative and alternative communication (AAC), 127
print disabilities, 128
instructional technology, 130
e-text, 133
supported e-text, 133
stigmatization, 138
abandonment, 139
universal design for learning (UDL), 139

Learning Activities

1. Search for your state's assistive technology program. Determine what assistive technology is available through the lending library and what other resources or supports the program offers.
2. Visit several elementary and secondary classrooms in your area. What assistive technology is being implemented to support students with disabilities in content-area learning? Ask the teachers about the perceived benefits and challenges of using the assistive technology devices.
3. Visit the college or university office on your campus that provides services to students with disabilities. Inquire about the assistive technology services that are offered to students who qualify for such services. If possible, visit the area that provides assistive technology and explore the technology that is available to help students with disabilities achieve success in the classroom.
4. Search online for the free content-area assistive technology mentioned in this chapter. Explore the assistive technology online or by downloading it to a computer. Critically examine these assistive technology tools. Evaluate them for ease of use, challenges with implementation in a classroom, the benefits they may provide to a student with a disability, and if such assistive technology could be made available to all students.

Reflecting on Standards The following exercises were designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of

the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Curricular Content Knowledge (CEC Initial Preparation Standard 3.1)

Reflect on what you learned in this chapter about assistive technology to support content-area learning for students with disabilities. As a general or special education teacher, what assistive technology would you recommend considering or discussing at the IEP team meeting if a student struggles with handwriting? Mathematical computation? Decoding words? Or staying organized and on task?

Focus on Instructional Planning and Strategies (CEC Initial Preparation Standard 5.2)

Reflect on how you use technology to support your own learning or daily living activities. How does using the technology make you feel? Does it allow you to complete your work or activities faster or easier? What if you were not allowed to use such technology—how would that impact your learning or daily life activities?

Organizations Concerned With Assistive Technology

Assistive Technology Industry Association (ATIA)

info@ATIA.org

www.atia.org

Center for Applied Special Technology (CAST)

cast@cast.org

www.cast.org

Innovations in Special Education Technology (formally TAM), Council for Exceptional Children (CEC)

www.isetcec.org/about/contact

www.isetcec.org

Rehabilitation Engineering and Assistive Technology Society of North America (RESNA)

www.resna.org

Student Study Site

Sharpen your skills with SAGE edge at **edge.sagepub.com/gargiulo7e**. SAGE edge for students provides a personalized approach to help you accomplish your coursework goals in an easy-to-use learning environment.

Part 2 A Study of Individuals With Exceptionalities

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“It is not our disability that is the problem, but rather it is the way our disabilities are viewed by others.”

—Drexel Deal Author and Motivational Speaker

“My ability is greater than my disability.”

—Nikki Rowe Author

Chapter 6 • Individuals With Intellectual Disability
Chapter 7 • Individuals With Learning Disabilities
Chapter 8 • Individuals With Attention Deficit Hyperactivity Disorder
Chapter 9 • Individuals With Emotional or Behavioral Disorders
Chapter 10 • Individuals With Autism Spectrum Disorders
Chapter 11 • Individuals With Speech and Language Impairments
Chapter 12 • Individuals With Hearing Impairments
Chapter 13 • Individuals With Visual Impairments
Chapter 14 • Individuals With Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities
Chapter 15 • Individuals Who Are Gifted and Talented

6 Individuals With Intellectual Disability

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Learning Objectives

After reading Chapter 6, you should be able to:

6.1 **Summarize** the key elements of the AAIDD definitions of intellectual disability from 1961 to 2010.
6.2 **Describe** the concepts of intellectual ability and adaptive behavior.
6.3 **Explain** four ways of classifying individuals with intellectual disability.
6.4 **List** examples of pre-, peri-, and postnatal causes of intellectual disability.
6.5 **Identify** representative learning and social/behavioral characteristics of persons with intellectual disability.
6.6 **List** the key features of the following instructional strategies: task analysis, cooperative learning, and scaffolding.
6.7 **Outline** various low-, mid-, and high-tech devices that can support students with intellectual disability.
6.8 **Describe** the goals of early intervention for young children with intellectual disability.
6.9 **Discuss** contemporary services for adults with intellectual disability.

Carly's Story

Dressed in dark blue scrubs altered to fit her four-foot-ten-inch frame, she skillfully scanned her employee name badge at the door of the hospital, then turned back toward the car to give a half-crooked smile. I began to cry. Today they were tears of pure joy, but the tears I've shed over the last twenty-six years have not always been happy ones.

On June 10, 1989, my daughter Carly was born with Down syndrome. I was only 26, and we had chosen not to have prenatal testing, so this came as quite the shock. I cried for days, and believed that I might not ever smile again, much less laugh. But soon other families in the Down syndrome community reached out to me, sending pictures of their children dressed as a lion on Halloween, blowing out candles on a birthday cake, playing the piano, and standing at home plate. They seemed to be enjoying the things that typically developing children enjoy as well. They seemed, for lack of a better way to put it, pretty normal. My sadness turned to hope.

My husband and I began to work with Carly as soon as she arrived home from the hospital. We pinned the legs of her pajamas together to reduce the hypotonia—low muscle tone that affects many children with Down syndrome. We redecorated her room from pastels to the more stimulating colors of black and white. I read more books about Down syndrome in one month than I have in all the years since.

Eighteen months later, Carly was able to use a spoon and fork. But then a specialist convinced me to enroll Carly in a special preschool. All of her classmates there had

developmental disabilities, and none of them used silverware. Only a few days after she started school, Carly decided that she did not want to use it either. Our work for the past eighteen months vanished almost overnight.

Soon after, I traveled from South Carolina to Minneapolis for the National Down Syndrome Congress. There I heard Marsha Forest and Lou Brown speak on "inclusion," the idea that children with disabilities might perform better if they were educated alongside their typically developing peers. How can we expect children who are developmentally disabled to remain in a segregated environment for their schooling, they argued, and then one day join the general labor force? By the end of their talk, I had found my crusade. And the battle was on.

Thus, for the next twenty years, I made it my mission to ensure that Carly was educated in a general education classroom as much as possible. We realized, of course, that she would need to spend some time in a segregated environment. That was fine; for us, the important thing about inclusion was really the inclusion itself—that Carly would be exposed to her typically developing peers and thereby learn social skills that would allow her to interact and thrive in the broader world. Any reading, writing, or arithmetic that she picked up along the way was just bonus points.

Of course, exposing your child to his or her peers has its pitfalls, as every parent knows. Carly quickly learned some catchy swear words. She sobbed uncontrollably when she did not receive an invite to a friend's birthday party. Once I took her to Walgreens, where she raised a condom in the air and said in a loud voice, "We are studying about these in school." When you think about it, though, these experiences are really just part of growing up in America. And that's where we wanted her to be able to thrive one day.

It is true that our philosophy has led to some "gaps" in Carly's academic education. For example, a group of professors recently asked Carly what she struggled with. "Time and money," she responded. "Us, too," they replied, laughing. Little did they know that what Carly really meant is that she does not fully appreciate time and does not fully comprehend the value of money. For her, ten minutes and three hours can be indistinguishable, and a fancy dinner costs around ten dollars.

That said, Carly did manage to pick up academic skills along the way. When Carly reached high school, it became clear that she might be able to score high enough on the statewide graduation exams to receive a regular high school diploma. For years, we worked tirelessly toward that goal. She added the needed credits to her transcript, through adapted curriculum, and toiled each night with tutors, tears, and a calculator trying to master pre-algebra and geometry. In the end, she passed the tests, becoming one of the first people with Down syndrome in state history to receive a regular diploma.

It is hard to overstate just how proud Carly is of that piece of parchment. She talked about it constantly; indeed, she still does. There is a great scene at the end of *The Wizard of Oz*, where the scarecrow is talking to the wizard and wishing for the brain that he was never given. (It is a wish, as you can imagine, that resonates poignantly with the intellectually challenged and their families.) "Back where I come from," the wizard says, "we have seats of great learning, where men go to become great thinkers. And when they come out, they think great thoughts—and with no more brains than you have. But they have one

thing that you haven't got: a diploma." "Oh joy! Oh rapture!" the scarecrow replies, leaping up and down, clasping the degree in his hands, "I have got a brain." And that, more or less, is exactly the way it was with Carly and her own diploma. Because when you've grown up your entire life being told—in ways both explicit and unstated—that you don't have a brain, well, a little academic recognition goes quite a long way.

The question, though, was what was next. My husband and I live in Knoxville, and a few years ago the University of Tennessee created a program that would allow individuals with a developmental disability to have a college experience. So Carly became a UT Volunteer, navigating the hills and halls of an SEC (Southeastern Conference) campus complete with an official student ID. She audited a film study class and became fascinated with Alfred Hitchcock. She interned in the English Department putting together freshman packets and took a ballroom dance class and learned the foxtrot. It was quite the image: Carly—at four-foot-ten—dancing with a UT basketball player who was well over six-three. "I am sorry that I am so short," she said. "I'm sorry I'm so tall," he replied. But it meant so much to Carly to be able to say that she had gone to college, even in some small way.

Carly also acquired at UT, like many young adults, a boyfriend. His name is Chad. One day in the car she announced that she and Chad had kissed. I didn't see that one coming. I asked Carly whether she thought they might do so again. "No, I don't think so," she said. Unfortunately, Carly eventually reconsidered her position on that subject.

As far as boyfriends go, though, Chad is as gentlemanly as they come. He opens doors for Carly, has a variety of truly mushy names for her, and is generally quite charming. However, he thinks that my physician husband and lawyer son are not quite on his level —in terms of intellect, that is—because they know nothing about college sports. But other young women have boyfriends, and thus Carly likes being able to say she has one too. They share with one another their love of family and music, their enjoyment of sports (which Carly has tried to cultivate so as "to make this relationship work"), their common challenges, and their faith. Theirs is a simple solid faith like that of a child, of course, but at least according to the Gospel of Matthew, that's really the best kind.

Most recently, Carly has been hired as a medical support tech in the nursing department. It is no exaggeration to say that she is the in-house celebrity of East Tennessee Children's Hospital, a true rock star. Everyone knows her, from the orderlies to the nurses to the doctors to the high-level administrators. She gets to work with children, including children who have Down syndrome, and seeing a person like Carly in gainful employment is such a blessing to the parents of those children. It gives them hope for their own future. I wish so much that, on the day Carly was born, I had seen in the hospital hallway an employee bearing Down syndrome's telltale physical markers. For Carly, there is nothing that has boosted her self-esteem more than having a paying job. She loves her work, hates going on vacation—because it takes her away from work—and bounces out of the car each day thrilled to be part of a team.

One of the most common questions I receive is what the future holds for Carly. I'm not quite sure. But what parent is? Carly has in her twenty-six years performed on stage in front of hundreds, learned to ski better than I can, been featured in numerous newspaper

articles, been on television, bowled a 187, and been both an attendant and a maid-of-honor in recent weddings. She has graduated from high school, has a boyfriend, and has been to college. She's been happy and sad, felt both at home and out of place, experienced real moments of triumph, and also been terribly frustrated with a world that is often just too complex for her to fully understand.

She has always wanted to be a film actress, for example, and convincing her that she would never be a "star"—as she puts it—was a real struggle that took many years and is to some extent still ongoing. It's a tough pill to swallow for Carly, and really for the rest of us, too, to realize that the real world is not the one portrayed in Disney movies, to come to terms with our physical and mental limitations, to accept the hard reality that we did not win the genetic lottery and thus our dreams will not all come true.

Going forward, we want for Carly what all parents want for their child—that she will do the best she can with the gifts that God has given her. She's done just that so far, and along the way made a real impact on the lives of those around her, inspiring others with her work ethic, tenacity, strength to persevere, and acceptance of her gifts as well as her limitations. What Carly herself wants, though, is to be accepted for who she is, to have the same experiences as everyone else, to feel like she is a valued, hardworking member of society, that she matters in this world. And on some level, don't we all?

Reflecting over the years, I know that it is no exaggeration to say that the lives of those around her would be changed—and changed for the worse—if not for a four-foot-ten-inch girl with a little extra genetic material.

—Anonymous

Intellectual disability is a very powerful term. It is also an emotionally laden label, one that conjures up various images of people with intellectual disability. What do you think of when someone says "intellectual disability"? Do you immediately think of the character from the movie *Radio*, *The Other Sister*, or *I Am Sam*? Maybe you recall meeting a young girl with Down syndrome when you volunteered to help during last year's Special Olympics, or perhaps you recollect how you felt when a group of adults with intellectual disability sat by you in a restaurant. Often our images of individuals with an intellectual disability are based on stereotypes resulting from limited contact and exposure. Consequently, many of us are susceptible to inaccuracies, misconceptions, and erroneous beliefs about this population. As a result, people with intellectual disability frequently encounter prejudice, ignorance, and, in some instances, outright discrimination simply because society has identified them as being "different." Yet despite the diversity represented by this group, we firmly

believe that children and adults with intellectual disability are first and foremost people who are more like their typically developing peers than they are different from them. In fact, very few ever fit the images and stereotypes commonly portrayed by the media.

Until very recently, individuals with an intellectual disability were often identified as *mentally retarded*—a pejorative, stigmatizing, and highly offensive label (commonly referred to in some circles as the “R” word). Today, the terminology of choice is *intellectual disability*. The acceptance of this new terminology has been championed by the premier professional organization in the field—the American Association on Intellectual and Developmental Disabilities.

The term *intellectual disability* is currently preferred by many policy makers, advocates, parents, service providers, teachers, and scholars. It is generally seen as less offensive to persons with this disability and is also consistent with contemporary Canadian and European terminology. The United States adopted this position several years ago. In October 2010, legislation was enacted (PL 111–256, Rosa’s law) that removed the terms *mental retardation* and *mentally retarded* from federal health, education, and labor statutes. In their place, we now find the designation *intellectual disability* to be the preferred language.

The goal of this chapter is to examine basic issues and concepts necessary for understanding the field of intellectual disability and individuals with this disability. In this chapter, we will look at historical foundations, evolving definitions and classification models, causes of intellectual disability, characteristics of persons with intellectual disability, contemporary educational practices, and trends in service delivery along with related concepts. We have adopted a life span perspective for exploring the concept of intellectual disability. This chapter, and those that follow, will therefore address topics and issues pertaining to infancy through adulthood.

Defining Intellectual Disability: An Evolving Process

Intellectual disability is a complex and multifaceted concept. Intellectual disability has been studied by psychologists, sociologists, educators, physicians, and many other professionals. This multidisciplinary interest in and investigation of intellectual disability, while beneficial, has significantly contributed to problems of conceptual and definitional clarity (Drew & Hardman, 2007). Yet by its very nature, intellectual disability cannot be studied independently of other disciplines. We fully agree with Drew and Hardman (2007) that there is considerable merit in a multidisciplinary approach; however, we must not lose sight of what should be our central focus, the individual with an intellectual disability.

President Barack Obama hugs Rosa Marcellino, the girl behind Rosa's law, which requires the federal government to replace the term *mental retardation* with *intellectual disability*.

AFP/Stringer/Getty Images

Historical Interpretations

Over the years, the American Association on Intellectual and Developmental Disabilities (AAIDD) has put forth several different interpretations of intellectual disability. (In previous decades, the organization identified this disability as mental retardation.) We will briefly examine some of these early definitions to gain a better appreciation of how our understanding of this disability has evolved.

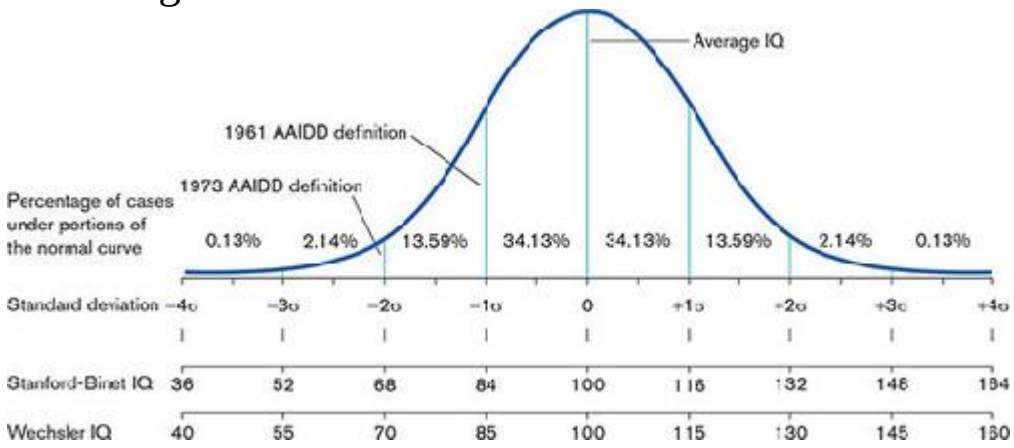
1961 AAIDD Definition. AAIDD's sixth definition appeared in 1961 and was widely accepted by professionals. At this point in time, intellectual disability was described as "subaverage general intellectual functioning which originates during the developmental period and is associated with impairments in adaptive behavior" (Heber, 1961, p. 3). Let us analyze the meaning of these phrases. *Subaverage general intellectual functioning* is defined as an intelligence quotient (IQ) greater than one **standard deviation (SD)** (a statistic describing variance from the mean or average score of a particular group) below the mean for a given age group. In 1961, this was interpreted to be an IQ below 85 or 84, depending on which standardized IQ test was used. The *developmental period* extended from birth to approximately age 16. The criterion of *impairments in adaptive behavior* is a critical and unique aspect of this definition. The inclusion of this factor establishes dual criteria for identifying someone as having an intellectual disability (Scheerenberger, 1987). **Adaptive behavior**, which Heber (1961) first introduced, refers to an individual's ability to meet the social requirements of his or her community that are appropriate for his or her chronological age; it is an indication of independence and social competency. Thus, according to Heber's definition, a person with an IQ of 79 who did not exhibit a significant impairment in adaptive behavior could not be identified as having an intellectual disability.

standard deviation (SD) A descriptive statistic that expresses the variability and distribution of a set of scores relative to the mean.

adaptive behavior The ability of an individual to meet the standards of personal independence as well as social responsibility appropriate for his or her chronological age and cultural group.

1973 AAIDD Definition. Herbert Grossman chaired a committee charged with revising the 1961 AAIDD definition. Grossman's (1973) definition viewed intellectual disability as "significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior, and manifested during the developmental period" (p. 11). Though paralleling its predecessor, the Grossman definition is conceptually distinct. First, the 1973 definition refers to significantly subaverage intellectual ability. Operationally, intellectual disability was psychometrically redefined as performance at least two standard deviations below the mean. This more conservative approach considered the upper IQ limit to be 70 or 68 (again, depending on whether the Stanford-Binet Intelligence Scales [SD = 16 points] or the Wechsler Intelligence Scale for Children [SD = 15 points] was used). Statistically speaking, this represents the lower 2.27 percent of the population instead of the approximately 16 percent included in the Heber (1961) definition. (See Figure 6.1.) Adopting this standard eliminated the classification of "borderline" intellectual disability incorporated in Heber's conceptual scheme.

Figure 6.1 The Normal Curve: A Theoretical Distribution of Intelligence



Note: The 1961 AAIDD definition defines intellectual disability as an IQ lower than 85 (84) on a standardized measure of intelligence. The 1973 AAIDD definition defines intellectual disability as an IQ lower than 70 (68). Later versions allow for professional judgment when considering intellectual performance.

The Grossman (1973) definition also sought to clarify the relationship between adaptive behavior and intellectual functioning. This definition attempted to focus greater attention on adaptive behavior and described it as the ability of an individual to meet "the standards of personal independence and social responsibility expected of his [or her] age and cultural group" (Grossman, 1973, p. 11). Adaptive behavior was to be considered within the context of the person's age and sociocultural group. Grossman's work attempted to strengthen the link between IQ and adaptive behavior in an effort to reduce the number of pupils identified with intellectual disability solely on the basis of their IQ. The 1973 definition also extended the concept of the developmental period to age 18 to more accurately reflect when most people complete their education. Although this definition forms the foundation for the IDEA 2004 (Individuals with Disabilities Education Improvement Act) definition of intellectual disability, some educators were concerned that lowering the IQ threshold to 68 (70) could possibly deny a special education to students who otherwise would have been eligible. It was feared that these children would be misclassified and inappropriately placed and thus "drown in the mainstream" (Scheerenberger, 1987).

1983 AAIDD Definition. In 1983, AAIDD published yet another revision to its manual on terminology and classification. Once again, Grossman led the organization's efforts. The eighth edition mirrors its 1973 predecessor. Though very similar in wording to the 1973 definition, this version contains some important changes. The 1983 Grossman edition suggests using a range of 70–75 when describing the upper limits of intellectual performance on a standardized measure of intelligence rather than a strict cutoff of 70. An IQ score of 70 is intended only as a guideline. Flexibility is the key to understanding the operation of this definition. The clinical judgment of the professional now plays an important role when making a diagnosis of intellectual disability.

1992 AAIDD Definition. In May 1992, Ruth Luckasson and her colleagues crafted a new definition of intellectual disability, which was published in *Mental Retardation: Definition, Classification, and Systems of Support*. According to this manual,

> Mental retardation [intellectual disability] refers to substantial limitations in present functioning. It is characterized by significantly subaverage intellectual functioning, existing concurrently with related limitations in two or more of the following applicable adaptive skill areas: communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work. Mental retardation [intellectual disability] manifests before age 18. (Luckasson et al., 1992, p. 5)

Application of this definition requires careful consideration of the following four essential assumptions:

1. Valid assessment considers cultural and linguistic diversity as well as differences in communication and behavioral factors.
2. The existence of limitations in adaptive skills occurs within the context of community environments typical of the individual's age peers and is indexed to the person's individualized needs for supports.
3. Specific adaptive limitations often coexist with strengths in other adaptive skills or other personal capabilities.
4. With appropriate supports over a sustained period, the life functioning of the person with mental retardation [intellectual disability] will generally improve. (Luckasson et al., 1992, p. 5)

The 1992 AAIDD definition is a highly functional definition. It portrays intellectual disability as a relationship among three key elements: the individual, the environment, and the type of support required for maximum functioning in various settings. It essentially reflects the "fit" between the person's capabilities and the structure and expectations of the environment. This ninth version also represents a conceptual shift away from viewing

intellectual disability as an inherent trait to a perspective that considers the person's present level of functioning and the supports needed to improve it. The interaction among the individual, the environment, and supports is perhaps best conceptualized as an equilateral triangle because it portrays the equality among the three elements (or sides).

The 1992 AAIDD description of intellectual disability stresses functioning in one's community rather than just focusing on the clinical aspect of the individual such as IQ or adaptive behavior (Smith, Polloway, Patton, & Dowdy, 2008). This definition is an optimistic one; it assumes that a person's performance will improve over time when appropriate supports are provided. Though certainly a unique portrayal of intellectual disability, this definition, like its predecessors, retains an emphasis on intellectual performance coupled with impairments in adaptive skills.

Contemporary Viewpoints

2002 AAIDD Definition. As times have changed, so has our understanding of the construct of intellectual disability. Because the 1992 AAIDD definition proved to be fairly controversial and not well accepted by professionals in the field, yet another definition was crafted a decade later. The 2002 AAIDD definition represents another effort in our evolving understanding of intellectual disability. The purpose of the tenth edition was to "create a contemporary system of diagnosis, classification, and systems of support for the disability currently known as mental retardation [intellectual disability]" (Luckasson et al., 2002, p. xii).

This definition states that "mental retardation [intellectual disability] is a disability characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills. This disability originates before age 18" (Luckasson et al., 2002, p. 1).

Accompanying this description are five assumptions considered essential when applying this definition:

- Limitations in present functioning must be considered within the context of community environments typical of the individual's age, peers, and culture.
- Valid assessment considers cultural and linguistic diversity as well as differences in communication and sensory, motor, and behavioral factors.
- Within an individual, limitations often coexist with strengths.
- An important purpose of describing limitations is to develop a profile of needed supports.
- With appropriate personalized supports over a sustained period, the life functioning of the person with mental retardation [intellectual disability] will generally improve. (Luckasson et al., 2002, p. 1)

Like its predecessor, the 2002 AAIDD definition retains a positive perspective toward individuals with intellectual disability while continuing to acknowledge the significance of adaptive behavior and systems of support. It also preserves the idea that intellectual disability is a "function of the relationship among individual functioning, supports, and contexts" (Wehmeyer, 2003, p. 276). This conceptualization of intellectual disability, while not flawless, represents a logical step in the continuing challenge of advancing our understanding of the concept of intellectual disability.

2010 AAIDD Definition. The eleventh, and latest, AAIDD definition (Schalock et al., 2010) both reiterates and strengthens key concepts found in the 2002 definition of intellectual disability. Developed by a committee of eighteen medical and legal scholars as well as policy makers, educators, and other professionals, the 2010 definition emphasizes the abilities and assets of individuals with intellectual disability rather than their deficits or limitations.

Intellectual disability is viewed as a state of functioning rather than an inherent trait. As in earlier definitions, one of the goals of the 2010 definition is to maximize support services so as to allow persons with intellectual disability to participate fully in all aspects of daily life.

The description of intellectual disability in the 2010 manual mirrors the wording found in the tenth edition, as do the five accompanying assumptions. The eleventh edition also retains the emphasis on adaptive behavior while stressing systems of support. The term *mental retardation*, however, is replaced by the more contemporary label *intellectual disability.* This term is less pejorative while also reflecting a social-ecological understanding of disability (Schalock, 2019). The committee notes, however, that despite the change in terminology, the term *intellectual disability* refers to the same population of individuals who were recognized previously as being mentally retarded (Schalock et al., 2010).

The latest AAIDD definition reflects best practices and new thinking about classifying individuals with intellectual disability. Rather than using intellectual functioning as a basis for classifying persons with cognitive

limitations, the 2010 definition encourages professionals and service providers to classify on the basis of various dimensions of human functioning—intellectual abilities, adaptive behavior, health, participation, and context. *Human functioning* is essentially viewed as "an umbrella term for all life activities and encompasses body structures and functions, personal activities, and participation, which in turn are influenced by one's health and environmental or contextual factors" (Schalock et al., 2010, p. 15). This multidimensional perspective allows one to classify depending on the questions being asked (for example, "Is this person competent to be a self-advocate, maintain a bank account, or have sexual relations?") and the specific purpose of the classification system. Classification is then linked to personalized systems of supports for that individual (Schalock, 2019).

Assessing Intellectual Ability and Adaptive Behavior

The constructs of intelligence and adaptive behavior play key roles in our understanding of the concept of intellectual disability. Yet both of these terms are somewhat difficult to define and assess. For the sake of clarity, we will discuss each concept separately; but remember they are intricately interrelated and provide the foundation for contemporary thinking about intellectual disability.

Persons with an intellectual disability can be taught how to live independently.

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Intellectual Ability

The question of what constitutes intelligence and how to describe it has challenged educators, psychologists, and thinkers throughout the years. Even today there is disagreement among professionals as to the meaning of this term and the best way of measuring intelligence. Intelligence is perhaps best thought of as a construct or theoretical abstraction; it is not a visible entity but rather a human trait whose existence is inferred based on a person's performance on certain types of cognitive tasks. Because no one has ever seen intelligence and we have only deduced its presence, professionals have come to the realization that they are "attempting to explain one of the most complex and elusive components of human functioning" (Beirne-Smith, Patton, & Kim, 2006, p. 95).

These difficulties notwithstanding, a great amount of effort has been expended on trying to accurately assess intellectual functioning. The most common way of determining an individual's cognitive ability is through an IQ or intelligence test. Two of the more widely used individually administered IQ measures are the Wechsler Intelligence Scale for Children (5th ed.), or WISC-V (Wechsler, 2014), and the fifth edition of the original work of Binet and Simon from the early twentieth century, the Stanford-Binet Intelligence Scales (Roid, 2003). As noted in Chapter 3, some psychologists and psychometrists rely on the second revised edition of the Kaufman Assessment Battery for Children (Kaufman & Kaufman, 2018), especially when evaluating children from culturally and linguistically diverse backgrounds.

Data gleaned from the WISC-V, the Stanford-Binet V, and similar measures are thought to represent a sample of an individual's intellectual skills and abilities. These data are usually summarized as an IQ score. Originally, an IQ was defined as a ratio between the person's mental age (MA or developmental level) and chronological age (CA) multiplied by 100. For instance, a student whose chronological age is 10 but who performs on an IQ test like a typical 5-year-old would have an IQ of 50; if accompanied by

deficits in adaptive behavior, this individual would very likely be identified as having an intellectual disability. Today, deviation IQs or standard scores have replaced intelligence quotients in most professional circles. A standard score is nothing more than an expression of how far a particular raw score deviates from a specific reference point such as the test mean. Standard scores are often expressed as standard deviations. One standard deviation on both the Stanford-Binet V and the WISC-V is equivalent to 15 IQ points. Both tests have a mean IQ of 100.

Although IQ testing is very common in schools, the issue of assessing someone's intelligence, especially if a special education placement may result, is somewhat controversial. Cautionary flags and reasons for concern tend to focus on these issues:

- Potential for cultural bias. Intellectual assessments are often criticized because of their highly verbal nature and reflection of middle-class Anglo standards.
- Stability of IQ. An IQ test reports a person's performance only at a particular point in time; intelligence is not static but capable of changing, and in some cases, the change can be significant.
- Overemphasis on IQ scores. An IQ score is not the sole indicator of an individual's ability, nor is it a measure of the person's worth, yet IQ is often stressed at the expense of other factors, such as motivation or adaptive skills.

Adaptive Behavior

The notion of adaptive behavior was first introduced in the 1973 AAIDD definition of intellectual disability. It was retained in the 1983 description and is the underpinning of the most recent AAIDD definitions. Adaptive behavior is seen as “the degree to which, and the efficiency with which, the individual meets the standards of maturation, learning, personal independence, and/or social responsibility that are expected for his or her age level and cultural group” (Grossman, 1983, p. 11). In continuing this thinking, the 2002 AAIDD definition by Luckasson et al. describes adaptive behavior as “the collection of conceptual, social, and practical skills that have been learned by people in order to function in their everyday society” (p. 73). Stated another way, it is how well a person copes with the everyday demands and requirements of his or her environment. The idea of context is important for understanding the concept of adaptive behavior. Because behavior is strongly influenced by cultural factors, age and situation appropriateness must always be considered within the setting in which it occurs. For example, a teenage girl who uses her fingers while eating might be viewed as exhibiting inappropriate behavior; however, this behavior is maladaptive only when considered within the context of Western cultures.

The 1992, 2002, and 2010 AAIDD definitions, like earlier formulations, emphasize adaptive behavior, but now it is more clearly articulated. In earlier versions, adaptive behavior was described globally; in the Luckasson et al. (2002) configuration, it is seen as significant limitations in the expression or performance of conceptual (for example, reading and writing, money concepts), social (for example, obeying laws, following rules), and practical (for example, eating, dressing oneself, meal preparation, occupational abilities) adaptive skills.

It is not always easy to assess adaptive behavior. It is usually measured via direct observation, structured interviews, or standardized scales. Information may be obtained from family members, teachers, caregivers, or other professionals. AAIDD recently developed the Diagnostic Adaptive

Behavior Scale (DABS) as a standardized measure of adaptive behavior. Based on the three adaptive skill areas (conceptual, social, and practical), this new instrument is normed on individuals in the chronological age range of 4–21 years old with and without intellectual disability. Designed as a diagnostic test, the DABS seeks to provide a precise cutoff point for persons deemed to have “significant limitations” in adaptive behavior (Schalock, Tassé, & Balboni, 2015; Tassé et al., 2017). Recall that such limitations are one of the key components of the 2002 and 2010 AAIDD definitions of intellectual disability.

Classification of Individuals With Intellectual Disability

A classification system is a convenient way of differentiating among individuals who share a common characteristic—in this instance, intellectual disability. Of course, we must remember that there is a great degree of variability among members of this population despite the fact that they share a common label. Because intellectual disability exists along a continuum, there have been numerous proposals on how to classify people with this disability. Like definitions of intellectual disability, classification models tend to vary according to a particular focus. We will examine several systems—some vintage ones along with the most contemporary thinking in this area.

An Etiological Perspective

Traditionally, individuals with intellectual disability have been classified based on known or presumed medical/biological causes. This etiological orientation assumes that intellectual disability is a consequence of a disease process or biological defect. Examples include intellectual disability that is due to infections such as rubella (German measles) or maternal syphilis, chromosomal abnormalities such as Down syndrome, or metabolic disorders such as phenylketonuria (PKU). (These examples and others will be more fully explored in a later section of this chapter.) Although useful for physicians and other health care workers, this classification scheme has limited applicability for nonmedical practitioners.

Intellectual Deficits

A long-standing and popular classification scheme among psychologists and educators is one based on the severity of intellectual impairment as determined by an IQ test. This model is one of the most widely cited in the professional literature and, until recently, reflected the position of AAIDD dating back to the 1973 Grossman definition of intellectual disability. According to this system, deficits in intellectual functioning and related impairments in adaptive behavior result in individuals being classified into one of four levels of intellectual disability—mild, moderate, severe, or profound—with *mild* representing the highest level of performance for persons thought to have an intellectual disability and *profound* the lowest. Intellectual competency is often the primary variable used in constructing these discriminations; Table 6.1 presents the IQ ranges typically used.

Table 6.1 Classification of Intellectual Disability According to Measured Intelligence

Table 6.1 Classification of Intellectual Disability According to Measured Intelligence

Classification Level	Measured IQ	SD Below Mean
Mild intellectual disability	55–70	2 to 3
Moderate intellectual disability	40–55	3 to 4
Severe intellectual disability	25–40	4 to 5
Profound intellectual disability	Under 25	More than 5

Note: IQ scores are approximate.
SD = standard deviation.

An Educational Perspective

Another classification system popular with educators since the 1960s is to classify students with intellectual disability based on expected or anticipated educational accomplishments. Generally speaking, special education teachers classified children into one of two groups: **educable mentally retarded (EMR)** or **trainable mentally retarded (TMR)**. These designations are roughly equivalent to the AAIDD labels of *mild* and *moderate intellectual disability*, with IQs ranging from about 50–55 to 70–75 and 35–40 to 50–55, respectively. (Before the enactment of PL 94–142, public schools rarely served individuals with IQs lower than 35; therefore, these youngsters were not labeled according to this system.) As you might expect, the term *educable* implies that a youngster has some, albeit limited, academic potential; *trainable* implies that a child is incapable of learning but possibly could be trained in nonacademic areas. Over the years, professionals have learned that these prognostic labels, which represent an "educability quotient," are inaccurate and present a false dichotomy; we affirm that all children are capable of learning when presented with the appropriate circumstances. The notion of presumed academic achievement has slowly fallen out of favor in professional circles. These terms are currently considered pejorative and tend to perpetuate stereotypical and prejudicial attitudes.

educable mentally retarded (EMR) Classification of a person with mild intellectual disabilities who typically develops functional academic skills at a third- or fourth-grade level; IQ range generally between 50–55 and 70–75.

trainable mentally retarded (TMR) Classification of a person with moderate intellectual disabilities who is capable of learning self-care and social skills; IQ range generally between 35–40 and 50–55.

Levels of Support

In the early nineties, AAIDD (Luckasson et al., 1992), in a dramatic and controversial maneuver, shifted from a classification model based on severity of intellectual impairment to one based on the type and extent of needed supports. This scheme, retained in the 2002 definition by Luckasson et al., classifies individuals with intellectual disability according to the **level of support**—intermittent, limited, extensive, or pervasive—needed to effectively function across adaptive skill areas in various natural settings, rather than according to their deficits. In fact, AAIDD recommends abandoning references to severity. Table 6.2 describes the four classification levels endorsed by AAIDD.

level of support A classification scheme for individuals with intellectual disability that is based on the type and extent of assistance required to function in various areas.

Table 6.2 Classification of Intellectual Disability According to Intensities of Support

Table 6.2 Classification of Intellectual Disability According to Intensities of Support

Support Level	Description	Examples
Intermittent	Supports on an as-needed or episodic basis. Person does not always need the support(s), or person needs short-term supports during life span transitions. When provided, intermittent supports may be of high or low intensity.	• Loss of employment • Acute medical crisis
Limited	Supports characterized by consistency over time, time-limited	• Job training

Support Level	Description	Examples
	but not intermittent; may require fewer staff and less cost than more intense levels of support.	• Transitioning from school to adult status
Extensive	Supports characterized by regular involvement (e.g., daily) in at least some environments (e.g., work or home) and not time-limited.	• Ongoing home living assistance
Pervasive	Supports characterized by their constancy and high intensity; provided across all environments, potential life-sustaining nature. Pervasive supports typically involve more staff and intrusiveness than extensive or time-limited supports.	• Chronic medical situation

Source: Adapted from *Mental Retardation: Definition, Classification, and Systems of Supports*, 10th ed. (Washington, DC: American Association on Mental Retardation, 2002), p. 152.

The aim of this approach is to explain an individual's functional (rather than intellectual) limitations in terms of the amount of support he or she requires to achieve optimal growth and development at home, at school, at the workplace, and in other community settings (Beirne-Smith et al., 2006). This model, which represents more than a mere substitution for the previous AAIDD IQ-based classification scheme, extends the concept of support beyond the intensity of needed support to include the type of support system required. **Natural supports** typically include family members, friends, teachers, and coworkers. **Formal supports** are usually thought of as government-funded social programs like Social Security payments or health care programs, habilitation services, and even the efforts of groups like the Council for Exceptional Children or The Arc, a national advocacy organization on intellectual disability.

natural supports Assistance rendered by family members, friends, teachers, and coworkers.

formal supports Assistance provided by government social programs, habilitation services, or advocacy groups.

A Brief History of the Field

It is generally believed that individuals with intellectual disability have been present in all societies throughout the ages. Historically speaking, the field of intellectual disability resembles an ever-changing mosaic influenced by the sociopolitical and economic climate of the times. Attitudes toward and understanding of intellectual disability have also affected the treatment of people with intellectual disability. Intellectual disability is a field that is continually evolving—from the ignorance of antiquity to the highly scientific and legal foundations of the twenty-first century. Along this pathway, people with intellectual disability have had to endure and battle myths, fear, superstition, attempts at extermination, and educational and social segregation before arriving at today's policy of normalization and inclusion (Richards, Brady, & Taylor, 2015).

Early Civilizations

Early written records from the era of the Greek and Roman Empires make reference to citizens with intellectual disability. In some instances, these accounts date back to almost 1550 b.c. (Lindman & McIntyre, 1961). In many ways, the Greek and Roman societies were highly advanced and civilized, but the treatment of infants with disabilities would be judged cruel and barbaric by today's standards. Scheerenberger's (1983) detailed account of the history of intellectual disability reveals, for example, that in the city-state of Sparta, which placed a premium on physical strength and intellectual ability, eugenics and infanticide were common, everyday occurrences. Only the brightest and strongest of citizens were encouraged to have children. Newborns were examined by a council of inspectors, and babies thought to be defective or inferior were thrown from a cliff to die on the rocks below.

The early days of the Roman Republic mirrored the practices of the Greeks. Deformed infants were routinely allowed to perish—but only during the first eight days of life. Fathers held complete control over their children and could do whatever they wished, including selling or killing them. This doctrine of *patria potestas* is unparalleled in any other society.

The Middle Ages

From the fall of the Roman Empire in a.d. 476 to the beginning of the Renaissance in the 1300s, religion became a dominant social force, heralding a period of more humane treatment of individuals with disabilities. Churches established monasteries and asylums as sanctuaries for persons with intellectual disability. Children with intellectual disability were often called *les enfants du bon Dieu* (“the children of God”). Infanticide was rarely practiced because the largely agrarian societies required many workers in the fields. In some instances, individuals thought to have an intellectual disability found their way into castles where, though protected and shown favor, they served as buffoons and court jesters entertaining the nobility (Gargiulo, 1985). King Henry II of England enacted a policy in the twelfth century, *de praerogativa regis* (“of the king’s prerogative”), whereby “natural fools” became the king’s wards (Drew & Hardman, 2007).

At the same time, it was an era in which fear and superstition ran rampant. People with intellectual disability were frequently thought to be “filled with Satan” and to possess demonic powers, which often led to torture and death for practicing witchcraft. It was not uncommon for individuals with intellectual disability to be sent to prison and kept in chains because they were perceived to be a danger to society and their behavior was seen as unalterable.

Early Optimism

The “modern” period in the history of intellectual disability traces its roots to the early nineteenth century. It was during this period that the groundbreaking work of Jean-Marc Gaspard Itard (1774–1838) occurred. Recall from Chapter 1 that his pioneering efforts with Victor, the so-called wild boy, earned him the title *Father of Special Education*. His systematic attempts at educating Victor, whom he believed to be a victim of social/educational deprivation, signals the start of the notion that individuals with intellectual disability are capable of learning—however limited it may be.

Edouard Seguin (1812–1880) was inspired by the work of his mentor, Itard. Based on his religious convictions, Seguin was a fervent advocate for the education of children with intellectual disability. In 1837, Seguin established the first school in Paris for the education of children with intellectual disability. Because of the political turmoil in France in the mid-1800s, Seguin immigrated in 1848 to the United States, where he played a principal role in helping to establish residential facilities for persons with intellectual disability in several states. In 1876, the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons was established, with Seguin serving as its first president. This association was the forerunner of today’s American Association on Intellectual and Developmental Disabilities.

Protection and Pessimism

The late nineteenth and early twentieth centuries witnessed the development of large, geographically isolated institutions for individuals with intellectual disability. The focus of these facilities changed as the invigorating optimism of the early 1800s generally gave way to disillusionment, fear, and pessimism (Morrison & Polloway, 1995). Institutions were overcrowded and understaffed. Their mission shifted from one of education and rehabilitation, as espoused by Seguin and others, to a new custodial role. Caring concern was slowly replaced by an unjustified concern with protecting society from individuals with intellectual disability.

One of the unfortunate consequences of this shift in societal attitude was that institutions became permanent residences for people with intellectual disability; thus, they were no longer prepared for their eventual return to society (Drew & Hardman, 2007). Education and training functions virtually disappeared, and only the most rudimentary care was provided. Over time, these institutions deteriorated, becoming warehouses for society's unwanted citizens. Living conditions were harsh and often deplorable. This situation was poignantly captured by Blatt and Kaplan (1966) in their classic photographic essay on institutional life, *Christmas in Purgatory*.

Beginning in the 1960s, a highly visible call for more humane and normalized living arrangements for people with intellectual disability was issued. Initiated in Sweden by Nirje (1969), the principle of **normalization** emphasizes "making available to the mentally retarded [intellectually disabled] patterns and conditions of everyday life which are as close as possible to the norms and patterns of the mainstream of society" (p. 181). In the United States, the idea that persons with intellectual disability have a right to culturally normative experiences was championed by Wolfensberger (1972). This concept, coupled with a renaissance of societal concern for individuals with intellectual disability, helped to facilitate a movement, beginning in the 1970s, toward **deinstitutionalization** and more

community-based services for individuals with intellectual disability. Today, legislative as well as legal action has resulted in more normalized lifestyles and greater access to all aspects of society for our fellow citizens with intellectual disability.

normalization A principle advocating that individuals with disabilities should be integrated, to the maximum extent possible, into all aspects of everyday living.

deinstitutionalization A movement whereby persons with intellectual disabilities are relocated from large institutions into smaller, community-based, group living settings.

The Emergence of Public Education for Students With Intellectual Disability

Although institutions were firmly established as part of the American social fabric in the late 1800s, public education for children with intellectual disability was virtually nonexistent. The first public school class for “slow learning” youngsters was formed in Providence, Rhode Island, at the very end of the nineteenth century. You might remember that these programs were largely segregated or self-contained classes and would remain so for the better part of the twentieth century. Classes for higher-functioning pupils with intellectual disability began to grow, in part as a result of the popularizing of IQ testing. Scheerenberger (1983) reports that by 1930, sixteen states had enacted either mandatory or permissive legislation regarding special classes for children with intellectual disability. By 1952, forty-six of the forty-eight states provided an education to children with intellectual disability. Youngsters with severe or profound intellectual disability, however, were largely excluded from public education.

The 1960s and 1970s marked the beginning of an era of national concern for the rights of individuals, a focus that continues today. People with intellectual disability would benefit from this attention. Aided by the actions of President John F. Kennedy, who had a sister with intellectual disability, enlightened social policies, new educational programs, and a national research agenda were all forthcoming. At the same time, advances in the field of psychology and education demonstrated that, to some degree, all individuals with intellectual disability are capable of learning. Professionals also began a movement toward less restrictive and more integrated educational placements for students with intellectual disability—an emphasis with a very contemporary flavor. But perhaps the principal legacy of this era, which is foundational to today’s educational programming, is a greater acceptance of persons with intellectual disability and their right, as fellow citizens, to live their lives in the most normalized fashion possible.

The 1960s and 1970s marked the beginning of an era of national concern for the rights of individuals, aided by the actions of President Kennedy.

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Prevalence of Intellectual Disability

How many students in the United States have an intellectual disability? According to data from the U.S. Department of Education (2018), approximately 417,400 children between the ages of 6 and 21 were identified as intellectually disabled and receiving a special education during the 2016–2017 school year. These students represent 6.9 percent of all pupils with disabilities but less than 1 percent of the total school-age population. Although a figure of approximately 417,400 may seem large, over the years the number of students classified as having an intellectual disability has decreased significantly for a variety of reasons ranging from the benefits of prevention and early intervention, to changing definitions, to improved referral tactics.

The federal government, for the first time since the 1987–1988 school year, is now requiring states to report the number of preschoolers receiving a special education according to their disability label. This requirement represents a shift away from allowing states to use the term *developmentally delayed* when reporting preschoolers with disabilities. According to the U.S. Department of Education (2018), almost 13,700 preschoolers are recognized as intellectually disabled. This figure represents 1.8 percent of all young children with a disability.

Within the population of individuals identified as having an intellectual disability, persons with a mild intellectual disability, to use a familiar or common term, constitute the largest proportion. It is estimated that approximately 90 percent of people with intellectual disability function at the mild level (IQ 50 to 70–75). The remaining 10 percent are classified as exhibiting moderate, severe, or profound intellectual disability (Drew & Hardman, 2007).

Etiology of Intellectual Disability

Determining the cause, or **etiology**, of an intellectual disability is a difficult process. Multiple reasons are typically involved, and frequently the cause is unknown. In fact, in only about half of all cases of intellectual disability can a specific cause be cited (Polloway, Bouck, Patton, & Lubin, 2017). Generally speaking, the less severe the disability, the greater the likelihood that a particular cause cannot be determined (Gargiulo & Bouck, 2018a).

etiology A term frequently used when describing the cause of a disability.

Although scientists and other researchers are unable to determine the etiology of intellectual disability in every instance, we do know a great deal about what causes, or is at least implicated as causing, possible etiological factors. Investigators have designed several different schemes or models for classifying known and/or suspected causes of intellectual disability. For the purpose of this discussion, we have adopted the AAIDD (Luckasson et al., 2002) format for categorizing etiological factors typically associated with intellectual disability. The 2002 AAIDD model as well as the 2010 conceptualization designate three main sources of possible causes of intellectual disability that are based on the time of onset: **prenatal** (occurring before birth), **perinatal** (occurring around the time of birth), and **postnatal** (occurring after birth). Table 6.3 identifies some of the variables that could possibly lead to an intellectual disability.

prenatal Events occurring before birth.

perinatal Events occurring at or immediately after birth.

postnatal Events occurring after birth.

Table 6.3 Possible Causes of Intellectual Disability

Table 6.3 Possible Causes of Intellectual Disability

Prenatal Factors	Examples	Perinatal Factors	Examples	Postnatal Factors	Examples
Chromosomal abnormalities	• Down syndrome • Fragile X syndrome • Prader-Willi syndrome	Gestational disorders	• Low birth weight • Prematurity	Infections and intoxicants	• Child abuse/neglect • Head trauma • Malnutrition • Environmental deprivation
Metabolic and nutritional disorders	• Phenylketonuria • Tay-Sachs	Neonatal complications	• Hypoxia	Environmental factors	• Lead poisoning • Encephalitis

Prenatal Factors	Examples	Perinatal Factors	Examples	Postnatal Factors	Examples
	disease • Galactosemia		• Birth trauma • Seizures • Respiratory distress • Breech delivery • Prolonged delivery		• Meningitis • Reye's syndrome
Maternal infections	• Rubella • Syphilis • HIV (AIDS) • Cytomegalovirus • Rh incompatibility • Toxoplasmosis			Brain damage	• Neurofibromatosis • Tuberous sclerosis
Environmental conditions	• Fetal alcohol syndrome • Illicit drug use				
Unknown influences	• Anencephaly • Hydrocephalus • Microcephaly				

Prenatal Contributions

Even a quick glance at Table 6.3 suggests that many different factors, of various origins, contribute to the possibility that a developing fetus may be at risk for intellectual disability. In some instances, intellectual disability will be an inescapable fact; in other cases, it is highly probable. Fortunately, researchers are making great strides in the areas of detection and prevention of certain types of intellectual disability.

Chromosomal Abnormalities

Down syndrome, the most common and perhaps best-known genetic disorder, was first described by Dr. John Langdon Down in 1866; however, it was not until 1959 that Down syndrome was linked to a chromosomal abnormality (Lejune, Gautier, & Turpin, 1959). Most people have forty-six chromosomes arranged in twenty-three pairs; people with Down syndrome have forty-seven. Chromosomes are rod- or threadlike bodies that carry the genes that provide the blueprint or building blocks for development. About 5 percent of all people with intellectual disability have Down syndrome (Beirne-Smith et al., 2006). The most common type of Down syndrome, accounting for approximately 90 percent of cases, is known as trisomy 21. In this instance, an extra chromosome becomes attached to the twenty-first pair, with the result that there are three (tri) chromosomes at this particular site.

> **Down syndrome** A chromosomal abnormality frequently resulting in intellectual disability with accompanying distinctive physical features.

Scientists are uncertain as to exactly what causes Down syndrome. Thyroid problems, drugs, and exposure to radiation are all suspected, but there appears to be a strong link between maternal age and Down syndrome (Roizen, 2013). It is estimated that at age 25, the incidence of Down syndrome is about 1 out of 1,340 births; at age 30, it is 1 in 940 births; at age 35, it is 1 in 353 births; at age 40, it is 1 in 85 births; and at age 45, the

risk is about 1 out of 35 births (March of Dimes, 2019a). It is important to note that age itself does *not* cause Down syndrome, only that there is a strong correlation. Down syndrome affects all racial and socioeconomic groups equally.

Physicians will frequently offer women who are age 35 or older on their due date or those whose blood screening is abnormal diagnostic testing procedures that are capable of detecting chromosomal abnormalities like Down syndrome. **Chorionic villus sampling (CVS)** is one example. It is typically performed at about ten to thirteen weeks of gestation while **amniocentesis** is more common during the second trimester of pregnancy.

chorionic villus sampling (CVS) A diagnostic medical procedure used to detect a variety of chromosomal abnormalities, usually conducted in the first trimester of pregnancy.

amniocentesis A diagnostic medical procedure performed to detect chromosomal and genetic abnormalities in a fetus.

With CVS, a small sample of chorionic villi (tiny fingerlike projections that make up the placenta) is removed from the placenta and analyzed for chromosomal or genetic birth defects with results typically available within a few days. Although CVS carries a higher risk for a miscarriage than amniocentesis, detection of problems occurs earlier in fetal development. It is considered the safest invasive diagnostic procedure prior to the fourteenth week of pregnancy (Schonberg & Menzel, 2019). Amniocentesis, on the other hand, is usually done at about fifteen to eighteen weeks in the pregnancy. A small amount (1–2 ounces) of amniotic fluid is withdrawn via a needle from the sac surrounding the fetus. This fluid is then analyzed and a determination made, usually within ten to fourteen days, if the baby portrays atypical chromosomal development (Schonberg & Menzel, 2019).

In the vast majority of instances, these prenatal biochemical analyses do not reveal the presence of a disorder or defect. When the results are positive, however, and indicate that the fetus has, for example, Down syndrome, parents are confronted with a decision as to whether to terminate the pregnancy (called an elective or **therapeutic abortion**) or to begin planning

and preparation for an infant who will most likely have a disability. These are very difficult and often painful decisions involving a variety of moral and ethical dilemmas.

therapeutic abortion Elective termination of a pregnancy due to the presence of a birth defect.

Down syndrome most often results in mild to moderate intellectual disability. In some instances, however, individuals may have a severe intellectual disability, and in other situations, near normal intelligence is possible. Besides intellectual disability, this chromosomal aberration frequently results in other health concerns, such as heart defects, hearing loss, intestinal malformations, vision problems, and an increased risk for thyroid difficulties and leukemia (March of Dimes, 2019a; National Down Syndrome Society, 2019b).

People with Down syndrome have distinctive physical characteristics. Among the most commonly observed features are an upper slant of the eyes, short stature, a flat nose, somewhat smaller ears and nose, an enlarged and sometimes protruding tongue, short fingers, reduced muscle tone, and a single crease (simian crease) across the palm of the hand (people without Down syndrome have parallel lines). Most individuals with Down syndrome will exhibit some, but not all, of these identifying characteristics.

Life expectancies for people with Down syndrome have increased dramatically. In the 1920s and 1930s, the life span for a child with Down syndrome was generally less than ten years; today, thanks to advances in medicine and health care, large numbers of individuals with Down syndrome are living to age 60. With advancing chronological age, however, some individuals with Down syndrome face an elevated risk for developing Alzheimer's disease (National Down Syndrome Society, 2019a).

Fragile X syndrome is one of the more recently identified conditions linked to intellectual disability. This syndrome affects approximately 1 in 4,000 males and about 1 in 6,000 to 8,000 females, making it one of the leading inherited causes of intellectual disability (March of Dimes, 2019b;

Polloway et al., 2017). Because of the involvement of the X chromosome, this condition, which is caused by an abnormal or defective gene, predominantly affects males, although females can be carriers of the gene that causes it. Fragile X occurs in all racial and ethnic groups.

> **fragile X syndrome** A chromosomal abnormality leading to intellectual disabilities along with physical anomalies; believed to be the most common form of inherited intellectual disabilities.

Individuals who have this disorder have a deficiency in the structure of the X chromosome of the twenty-third pair. Under a microscope, one of the "arms" of the X chromosome appears pinched or weakened and thus fragile. Females, who have two X chromosomes, are less susceptible to the defective gene; males, who have one X and one Y chromosome, are substantially at risk.

Typical characteristics associated with this syndrome include a long narrow face, large ears, a prominent forehead, and a large head circumference. At puberty, enlarged testicles are present in males (Berry-Kravis, Myers, & Roizen, 2019; March of Dimes, 2019b). Behaviorally, individuals with fragile X syndrome typically exhibit attention disorders, self-stimulatory behaviors, and speech and language problems. Mild to severe intellectual disability is common in boys while girls with this disorder have mild intellectual disability or learning disabilities. Fragile X syndrome is also associated with autism spectrum disorders (Berry-Kravis et al., 2019).

Metabolic and Nutritional Disorders

Phenylketonuria, more commonly known by its acronym, **PKU**, is an example of an inborn error of metabolism. It is a recessive trait, meaning that both parents have to be carriers of the defective gene. When this occurs, there is a 25 percent chance that the infant will be born with PKU. There is an equal probability, however, that the baby will be healthy (and a 50 percent chance it will be an asymptomatic carrier) (March of Dimes, 2019c). In the United States, PKU appears in about 1 out of every 10,000 to

15,000 births and is more common among whites of European descent and Native Americans (March of Dimes, 2109d).

phenylketonuria (PKU) An inherited metabolic disorder resulting from the inability of the body to convert phenylalanine to tyrosine; can be detected at birth and controlled by diet; left untreated, consequences are often severe.

Down syndrome most often results in mild to moderate intellectual disability.

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PKU affects the way an infant's body processes or metabolizes protein. Affected babies lack the liver enzyme needed to process phenylalanine, which is common in many high-protein foods such as meat and dairy products. As a result of this deficiency, phenylalanine accumulates in the bloodstream and becomes toxic. This metabolic malfunction, if not promptly treated, leads to brain damage and intellectual disability, which is often severe.

Elevated levels of phenylalanine can be detected in the blood and urine of newborns within the first few days of life. All states now mandate screening for this disorder. If unusually high levels of phenylalanine are found, the infant is placed on a special diet, reducing the intake of protein. Researchers have found that if dietary restrictions are introduced shortly after birth, the devastating consequences of PKU are significantly minimized (Mew, MacLeod, & Batshaw, 2019). Current thinking suggests that dietary

restrictions be maintained throughout the person's life (National Institutes of Health, 2019). As individuals with PKU get older, dietary control becomes more difficult. Of particular concern are women of childbearing age who have PKU. The metabolic imbalances within these women can cause serious consequences to the developing fetus. In more than 90 percent of these pregnancies, babies are born with intellectual disability and heart defects, and they are usually of low birth weight. However, returning to an individualized, restricted diet prior to pregnancy and maintaining it throughout pregnancy usually results in a healthy baby (Mew et al., 2019). Awareness of this concern has resulted in warning labels on many popular food items such as diet soft drinks and some low-fat foods ("Caution: product contains phenylalanine").

Galactosemia is another example of an inborn error of metabolism. In this disorder, infants are unable to process galactose, a form of sugar, typically found in milk and other food products. Manifestation of this condition in newborns typically includes jaundice, liver damage, heightened susceptibility to infections, failure to thrive, vomiting, and cataracts, along with impaired intellectual functioning (Drew & Hardman, 2007). If galactosemia is detected early, a diet that avoids milk and other dairy products as well as certain legumes (for example, dried peas and garbanzo beans) is initiated. These dietary restrictions may substantially reduce the serious consequences associated with this disorder (Richards et al., 2015).

galactosemia An inborn error of metabolism that makes infants unable to process galactose, resulting in a variety of physical problems in addition to intellectual disabilities; dietary intervention reduces potential for problems.

Maternal Infections

Viruses and infections often cause intellectual disability and a host of other problems. While pregnant, a woman and her developing child are very susceptible to a wide variety of potentially damaging infections. Exposure during the first trimester of pregnancy usually results in severe consequences. **Rubella** (German measles) is a good example of this type of

infection. This mild but highly contagious illness has been linked to intellectual disability, vision and hearing defects, heart problems, and low birth weight. Rubella is one of the leading causes of multiple impairments in children. With the introduction of a rubella vaccine in 1969, instances of rubella-related disabilities have substantially decreased.

rubella A viral disease also known as German measles; contact in first trimester of pregnancy often results in a variety of significant impairments.

Sexually transmitted diseases such as gonorrhea and **syphilis** are capable of crossing the placenta and attacking the central nervous system of the developing fetus. In contrast to rubella, the risk to the unborn child is greater at the later stages of fetal development.

syphilis A venereal disease; infection of the mother in the last trimester of pregnancy can cause intellectual disabilities in the child.

Acquired immune deficiency syndrome (AIDS), which is attributed to the human immunodeficiency virus (HIV), is another probable cause of intellectual disability and other developmental delays. Generally transmitted via unprotected sexual intercourse with an infected person, exposure to contaminated blood or bodily fluids, or the sharing of hypodermic needles, HIV crosses the placenta and affects the central nervous system while also damaging the immune system, leaving the fetus substantially at risk for opportunistic infections. Pediatric AIDS is suspected of being a leading infectious cause of intellectual disability. At the same time, HIV is the single most preventable cause of infectious intellectual disability.

acquired immune deficiency syndrome (AIDS) An infectious disease caused by HIV (human immunodeficiency virus) that destroys the immune system, leaving the person open to serious, life-threatening diseases.

Maternal–fetal **Rh incompatibility**, although technically not an infection, is another potential cause of intellectual disability. At one time, this disease was a leading cause of intellectual disability; however, thanks to preventive

efforts, this is no longer the case. Simply stated, Rh disease is a blood group incompatibility between a mother and her unborn child. This discrepancy is the result of the Rh factor, a protein found on the surface of red blood cells. Rh-positive blood contains this protein; Rh-negative blood cells do not (Beirne-Smith et al., 2006).

Rh incompatibility A condition that results when a woman who is Rh negative carries an Rh-positive fetus. Mother's body will produce antibodies that can affect babies resulting from future pregnancies; often leads to intellectual disabilities and other impairments if mother does not receive an injection of Rho immune globulin.

Rh incompatibility often leads to serious consequences such as intellectual disability, cerebral palsy, epilepsy, and other neonatal complications. The problem arises when an Rh-negative mother carries an Rh-positive baby, which causes her to produce antibodies against any future Rh-positive fetus. For this reason, Rh-negative women today generally receive an injection of Rh immunoglobulin (Rhlg) within seventy-two hours of delivering an Rh-positive baby. In the vast majority of cases, this procedure prevents the production of antibodies, thus preventing problems in any future pregnancies.

Toxoplasmosis is a further example of maternal infection that typically poses grave risks to an unborn child. Toxoplasmosis is contracted through exposure to cat fecal matter; it is also present in undercooked or raw meat and raw eggs. If the mother is exposed to this parasitic infection during pregnancy, especially in the third trimester, it is very likely that fetal infection will occur. Infected infants may be born with an intellectual disability, cerebral palsy, damaged retinas leading to blindness, microcephaly (unusually small head), enlarged liver and spleen, jaundice, and other very serious complications. Antibiotics seem to provide some defense for both mother and child.

toxoplasmosis A maternal infection resulting from contact with parasites; especially devastating if exposure occurs during third trimester of pregnancy.

Our final illustration of maternal infections is **cytomegalovirus (CMV)**, an especially common virus that is part of the herpes group. Most women have been exposed to this virus at some time in their lives and thus develop immunity. If initial exposure occurs during pregnancy, however, the fetus may be severely affected. CMV often leads to brain damage and thus intellectual disability, blindness, and hearing impairments.

cytomegalovirus (CMV) A common virus that is part of the herpes group; if initial exposure occurs during pregnancy, severe damage to the fetus often results.

Environmental Contributions

Many unsafe maternal behaviors—among them, smoking, illicit drug use (for example, cocaine, heroin), and the consumption of alcohol before and during pregnancy—have been linked to impaired fetal development. The use of alcohol, in particular, has captured the attention of scientists and researchers for many years. In 1973, the term **fetal alcohol syndrome**, or **FAS**, was first coined (Jones, Smith, Ulleland, & Streissguth, 1973). Today, **fetal alcohol spectrum disorder (FASD)** is one of the leading causes of intellectual disability in the United States. Each year, an estimated 40,000 babies are born with some degree of alcohol-associated damage or defect (National Organization on Fetal Alcohol Syndrome, 2019). It is important to note that there is no known safe level of alcohol consumption during pregnancy (Kids Health, 2019).

fetal alcohol syndrome (FAS) Results from mother's consumption of alcohol while pregnant; mild to moderate intellectual disability is common, along with physical deformities. A leading cause of intellectual disability, although completely preventable.

fetal alcohol spectrum disorder (FASD) A term describing a group of conditions that can occur when a woman consumes alcohol while pregnant.

Depending on the amount, duration, and timing of alcohol consumption, damage to the central nervous system and developing brain of the unborn child is not uncommon. FAS, a more severe manifestation of FASD, is

characterized by a variety of physical deformities, including facial abnormalities, heart defects, low birth weight, and motor dysfunctions. In addition to mild to moderate intellectual disability, attention disorders and behavioral problems are usually present. Less severe and subtler forms of alcohol-related damage are recognized as **partial fetal alcohol syndrome (pFAS)**. The effects of excessive alcohol consumption last a lifetime, yet this condition is entirely preventable (National Organization on Fetal Alcohol Syndrome, 2019; Tewar, 2019).

partial fetal alcohol syndrome (pFAS) A less severe and more subtle form of fetal alcohol syndrome; caused by drinking alcohol while pregnant.

Unknown Influences

Several types of cranial malformations are the result of unknown prenatal factors. **Anencephaly** is but one illustration. In this condition, the entire brain or a large portion of it fails to develop properly, with devastating consequences for the infant. A more common condition is **microcephaly**, characterized by an unusually small head and severe intellectual disability. **Hydrocephalus** is a disorder associated with the interference or blockage of the flow of cerebrospinal fluid, resulting in an accumulation of excess fluid that typically leads to an enlarged cranial cavity and potentially damaging compression on the brain. Doctors can surgically implant shunts that remove the excess fluid, thereby minimizing the pressure on the infant's brain and consequently the severe effects of this condition.

anencephaly Cranial malformation; large part of the brain fails to develop.

microcephaly A condition in which the head is unusually small, leading to inadequate development of the brain and resulting in intellectual disabilities.

hydrocephalus A condition in which the head is unusually large due to accumulation of excessive cerebrospinal fluid; brain damage is often minimized by surgically implanting a shunt to remove excess fluid.

Perinatal Conditions

Gestational Disorders

The two most common problems associated with gestational disorders are **low birth weight** and **premature births**. Prematurity is generally defined as a birth that occurs prior to thirty-seven weeks of gestation. Low birth weight is defined as less than 5 pounds, 8 ounces (2,500 grams), and very low birth weight as less than 3 pounds, 5 ounces (1,500 grams). In the majority of instances, but not all, infants with low birth weight are premature. Not all babies with gestational disorders will have a disability or encounter future difficulties in school. However, some of these children may develop subtle learning problems, some may have an intellectual disability, and still others may have sensory and motor impairments.

low birth weight A term frequently used to describe babies who are born weighing less than 2,500 grams (5 lbs., 8 oz.).

premature births Babies born prior to thirty-seven weeks of gestation age.

Complications surrounding the birth process may cause intellectual disability and other developmental delays.

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Neonatal Complications

Complications surrounding the birth process may cause intellectual disability and other developmental delays. One common example is **anoxia** (oxygen deprivation) or **hypoxia** (insufficient oxygen). Anoxia may occur because of damage to the umbilical cord or as a result of a prolonged and difficult delivery. Obstetrical or **birth trauma**, such as the improper use of forceps, may cause excessive pressure on the skull, which in turn may damage a portion of the infant's brain. A **breech presentation** is another illustration of a neonatal problem. In a breech delivery, the infant exits the birth canal buttocks first instead of the more typical headfirst presentation. This fetal delivery position raises concerns about the possibility of damage to the umbilical cord and a heightened threat of injury to the baby's head because of the greater intensity and frequency of uterine contractions later in the birth process. Worries about the infant's skull also arise when a **precipitous birth** (one lasting less than two hours) occurs. The gentle molding of the skull may not take place during a precipitous birth, thus increasing the risk of tissue damage and intellectual disability (Drew & Hardman, 2007).

anoxia Loss of or inadequate supply of oxygen associated with the birth process and frequently resulting in brain damage.

hypoxia Insufficient amount of oxygen to the brain; can result in brain damage.

birth trauma Difficulties associated with the delivery of the fetus.

breech presentation Fetus exits the birth canal buttocks first rather than the more typical headfirst presentation.

precipitous birth Birth that occurs in less than two hours.

Postnatal Factors

Infections and Intoxicants

Lead and mercury are two examples of environmental toxins that can cause intellectual disability. **Lead poisoning** is a serious public health problem. Because of its highly toxic nature, lead is no longer used in the manufacturing of gasoline or paint. But even though it is no longer commercially available, some youngsters are still at risk for lead poisoning. Children who live in older homes or apartments may ingest lead by eating peeling paint chips containing lead. Lead poisoning can cause seizures, brain damage, and disorders of the central nervous system.

lead poisoning An environmental toxin used at one time in the manufacture of gasoline and paint; ingestion of lead can cause seizures, brain damage, and impaired central nervous system functioning.

Infections represent another source of concern for young children. **Meningitis**, a viral infection, causes damage to the covering of the brain known as the meninges. Meningitis may result from complications associated with typical childhood diseases such as mumps, measles, or chicken pox. Because it is capable of causing brain damage, intellectual disability is a distinct possibility. Equally devastating is **encephalitis**, which is an inflammation of the brain tissue. Encephalitis may cause damage to the central nervous system and can result from complications of infections typically associated with childhood, such as mumps or measles.

meningitis A viral or bacterial infection of the membranes covering the brain and spinal cord; associated with hearing loss and intellectual disabilities.

encephalitis An inflammation of the brain; may cause damage to the central nervous system.

Environmental Factors

A wide variety of environmental or psychosocial influences are often associated with intellectual disability, especially instances of mild intellectual disability. Debilitating factors may include nutritional problems, adverse living conditions, inadequate health care, and a lack of early cognitive stimulation. Many of these factors are associated with lower socioeconomic status (Witwer, Lawton, & Aman, 2014). Child abuse and neglect along with head trauma resulting from automobile accidents or play-related injuries are also potential contributing factors. Of course, not all children exposed to these traumatic postnatal situations become intellectually disabled. These illustrations represent only evidence correlated with, but not necessarily causes of, intellectual disability. It is perhaps best to think of these variables as interacting risk factors, with some children being more vulnerable than others. Fortunately, most children exposed to these unfavorable circumstances develop normally.

Although a large portion of intellectual disability is attributed to environmental factors, contemporary thinking suggests that intellectual disability associated with psychosocial influences is the result of interaction between environmental and genetic or biological contributions. Stated another way, a youngster’s genetic endowment provides a range of intellectual opportunity that is then mediated by the environment to which that individual is exposed.

Characteristics of Individuals With Intellectual Disability

When discussing characteristics common to people with intellectual disability, it is important to remember that although, as a group, they may exhibit a particular feature, not all individuals identified as intellectually disabled will share this characteristic. Persons with intellectual disability are an especially heterogeneous population; interindividual differences are considerable. Many factors influence individual behavior and functioning, among them chronological age, the severity and etiology of the disability, and educational opportunities. We caution you to remember that the following descriptions represent generalizations and are useful only for framing this discussion. Finally, in several ways, individuals with intellectual disability are more like their typically developing counterparts than they are different from them, sharing many of the same social, emotional, and physical needs.

Learning Characteristics

The most common defining characteristic of someone identified as intellectually disabled is impaired cognitive functioning, which, you may recall, can vary greatly. Investigators are typically not concerned with the person's intellectual ability per se but rather are concerned with the impact that lower IQ has on the individual's ability to learn, acquire concepts, process information, and apply knowledge in various settings, such as school and community. Scientists do not yet fully understand the complexity of the learning process in human beings. Learning is a difficult concept to define—in many ways, it is unique to the individual—and is composed of many interrelated cognitive processes. Learning, then, is not a unitary variable. We have chosen, therefore, to briefly examine several of the characteristics that researchers believe influence learning.

Attention

Attention, which is a multidimensional concept, plays a key role in learning. Many of the learning difficulties of individuals with intellectual disability are thought to be due to attentional deficits. Before learning a task, a person must be able to attend to its relevant attributes. Individuals with an intellectual disability often experience difficulty focusing their attention, maintaining it, and selectively attending to relevant stimuli. They often ignore the salient attributes of a task but instead focus on its irrelevant features. It may well be that children with intellectual disability perform poorly on certain learning tasks because they do not know how to attend to the critical aspects or dimensions of the problem (Alevriadou & Grouios, 2007; Richards et al., 2015).

Memory

Memory, which is an important component of learning, is often impaired in children with intellectual disability. Generally speaking, the more severe the

cognitive impairment, the greater the deficits in memory (Owens, 2009; Vicari, 2012). **Short-term memory** (information stored for a few seconds or hours) is especially problematic for individuals with intellectual disability; for example, they may have trouble following teacher directions given in sequence or sequential job tasks from an employer. **Working memory**, on the other hand, refers to the ability to retain information while simultaneously performing another cognitive task (Jarrold & Brock, 2012). Recalling an address while listening to directions illustrates this process. Research suggests that working memory in students with intellectual disability is significantly poorer in comparison to their typically developing peers (Richards et al., 2015). Impairments in working memory in pupils with intellectual disability are also linked to deficits in academic skills such as reading and arithmetic (Poloczek, Büttner, & Hasselhorn, 2012).

short-term memory The recall of information after a brief period of time.

working memory The ability to retain information while also engaging in another cognitive activity.

Academic Performance

As you might anticipate, students with intellectual disability encounter difficulties in their academic work. Generally, this deficiency is seen across all subject areas, but reading appears to be the weakest area, especially reading comprehension (Katims, 2000). Current research suggests, however, that higher levels of reading achievement than previously anticipated are possible when teachers use evidence-based instructional strategies to teach reading skills to students with intellectual disability (Lemons, Allor, Al Otaiba, & LeJune, 2016). Pupils identified as intellectually disabled are also deficient in arithmetic, but their performance is more in line with their mental age (Drew & Hardman, 2007). Remember, just because a student is academically unsuccessful does not mean that he or she cannot excel in other school endeavors, such as athletics or the arts.

Motivation

Motivational factors are crucial for understanding the discrepancy that often exists between an individual's performance and his or her actual ability. It is not unusual for students with intellectual disability to approach a learning situation with heightened anxiety. A history of failure in earlier encounters contributes to this generalized feeling of apprehension; consequently, pupils seem to be less goal oriented and lacking in motivation.

Past experiences with failure typically lead individuals with intellectual disability to exhibit an **external locus of control**; that is, they are likely to believe that the consequences or outcomes of their behavior are the result of circumstances and events beyond their personal control, rather than their own efforts (Shogren, Bovaird, Palmer, & Wehmeyer, 2010). Repeated episodes of failure also give rise to a related concept, **learned helplessness**—the perception that no matter how much effort they put forth, failure is inevitable. ("No matter how hard I try, I won't be successful!") This expectancy of failure frequently causes students with intellectual disability to stop trying, even when the task is one they are capable of completing. Educators sometimes refer to this behavior as the "pencil down syndrome."

external locus of control The belief that the consequences or outcomes of a person's actions are the result of circumstances and situations beyond one's control rather than a result of one's own efforts.

learned helplessness A lack of persistence at tasks that can be mastered; a tendency to expect failure.

Accumulated experiences with failure also result in a style of learning and problem solving characterized as **outer-directedness**, or a loss of confidence and trust in one's own abilities and solutions and a reliance on others for cues and guidance (Bybee & Zigler, 1998). While not solely limited to individuals with intellectual disability, this overreliance on others contributes to a lack of motivation and increased dependence. Once again, the origin of this behavior can be traced to the debilitating effects of repeated failure.

outer-directedness A condition characterized by a loss of confidence in one's own capabilities and a reliance on others for cues and guidance.

Generalization

It is not unusual for individuals with intellectual disability to experience difficulty in transferring or **generalizing** knowledge acquired in one context to new or different settings. In a large number of instances, learning for someone with an intellectual disability is situation specific; that is, once a particular skill or behavior is mastered, the individual has difficulty duplicating the skill when confronted with novel circumstances—different cues, different people, or different environments (Richards et al., 2015). For example, an adolescent with intellectual disability who can successfully determine correct change from a purchase in the school cafeteria might experience difficulty when counting his or her change at a grocery store or a restaurant. Therefore, teachers must systematically plan for generalization; typically, it does not occur automatically. Generalization of responses can be facilitated, for example, by using concrete materials rather than abstract representations, by providing instruction in various settings where the strategies or skill will typically be used, by incorporating a variety of examples and materials, or by simply informing the pupils of the multiple applications that are possible.

generalizing The ability to transfer previously learned knowledge or skills acquired in one setting to another set of circumstances or situation.

Language Development

Speech and language development are closely related to cognitive functioning. In fact, speech and language difficulties are more common among individuals with intellectual disability than in their typically developing counterparts (Gleason & Ratner, 2017). Given the association between intellectual ability and speech and language, it is not surprising that students with intellectual disability experience a great deal of difficulty

with academic tasks, such as reading, that require verbal and language competency.

Speech disorders are common among individuals with intellectual disability. These may include errors of articulation such as additions or distortions, fluency disorders (stuttering), and voice disorders such as hypernasal speech or concerns about loudness. In fact, researchers have found that speech and language difficulties are a fairly common secondary disability among students with intellectual disability (Beirne-Smith et al., 2006).

Despite the prevalence of speech disorders, language problems are receiving increased attention from professionals because deficits in this arena are highly debilitating. There is a strong correlation between intellectual ability and language development—the higher the IQ, the less pervasive the language disorder. Although children with intellectual disability, especially those with higher IQs, acquire language in the same fashion as their typically developing peers, development occurs more slowly, their vocabulary is more limited, and grammatical structure and sentence complexity are often impaired (Owens, 2014). Yet language is crucial for the independent functioning of individuals with an intellectual disability. Deficits in this area can significantly impede social development and hinder peer relationships (Friend & Bursuck, 2019).

Social and Behavioral Characteristics

The ability to get along with other people is an important skill, and it is just as significant for individuals who are intellectually disabled as it is for those without an intellectual disability. In fact, in some situations, social adeptness or proficiency may be as important as, if not more important than, intellectual ability. In the area of employment, for example, when workers with intellectual or other developmental disabilities experience difficulty on the job, it is frequently due to problems of social interactions with coworkers and supervisors rather than job performance per se (Hendricks & Wehman, 2009).

Individuals with intellectual disability often exhibit poor interpersonal skills and socially inappropriate or immature behavior; as a result, they frequently encounter rejection by peers and classmates. It is not unusual for individuals with intellectual disability to lack the social competency necessary to establish and maintain appropriate interpersonal relations (Friend & Bursuck, 2019; Vaughn, Bos, & Schumm, 2018). The success or failure of students with intellectual disability who are placed in general education classrooms is often determined by their social skills. A lack of social ability can pose significant difficulties as increasing numbers of individuals with intellectual disability are seizing the opportunity to participate in more normalized environments. Direct social skill instruction is one way of enhancing the social competency of pupils with intellectual disability (Barnett & Whalon, 2014). Behavior modification techniques can reduce inappropriate social behaviors while establishing more desirable and acceptable behaviors. The modeling of the appropriate behavior of classmates is another way that students with intellectual disability can acquire more socially attractive behaviors, which in turn can lead to greater peer acceptance.

Table 6.4 presents a summary of select learning and behavioral characteristics of individuals with intellectual disability.

Table 6.4 Representative Learning and Behavioral Characteristics of Individuals With Intellectual Disability

Table 6.4 Representative Learning and Behavioral Characteristics of Individuals With Intellectual Disability

Dimension	Associated Attributes and Features
Attention	• Inability to attend to critical or relevant features of a task • Diminished attention span • Difficulty ignoring distracting stimuli
Memory	• Deficits in memory correlated with severity of intellectual disability • Limitations in ability to selectively process and store information • Inefficient rehearsal strategies • Difficulty with short-term memory is common—recalling directions in sequence presented seconds earlier • Long-term retrieval (recalling a telephone number) is similar to that of peers without intellectual disability
Motivation	• History of and a generalized expectancy for failure—learned helplessness—effort is unrewarded; failure is inevitable • Exhibit external locus of control—belief that outcomes of behavior are the result of circumstances (fate, chance) beyond personal control rather than own efforts • Evidence outer-directedness, a loss of confidence and a distrust of own abilities, reliance on others for cues and guidance
Generalization	• Difficulty applying knowledge or skill to new tasks, situations, or settings • Problem in using

Dimension	Associated Attributes and Features
	previous experience in novel situations • Teachers must explicitly plan for generalization; typically it does not automatically occur
Language Development	• Follow same sequence of language acquisition as typical individuals, albeit at a slower pace • Strong correlation between intellectual ability and language development—the higher the IQ, the less pervasive the language difficulty • Speech disorders (articulation errors, stuttering) more common than in peers without intellectual disability • Vocabulary is often limited • Grammatical structure and sentence complexity are often impaired
Academic Development	• Generally exhibit difficulties in all academic areas with reading being the weakest • Problem-solving difficulties in arithmetic
Social Development	• Typically lacking in social competence • Rejection by peers and classmates is common—poor interpersonal skills • Frequently exhibit socially inappropriate or immature behavior—difficulty establishing and maintaining friendships • Diminished self-esteem coupled with low self-concept

Source: Adapted from R. Gargiulo and D. Metcalf, *Teaching in Today's Inclusive Classrooms*, 3rd ed. (Boston, MA: Cengage Learning, 2017), p. 84.

Educational Considerations

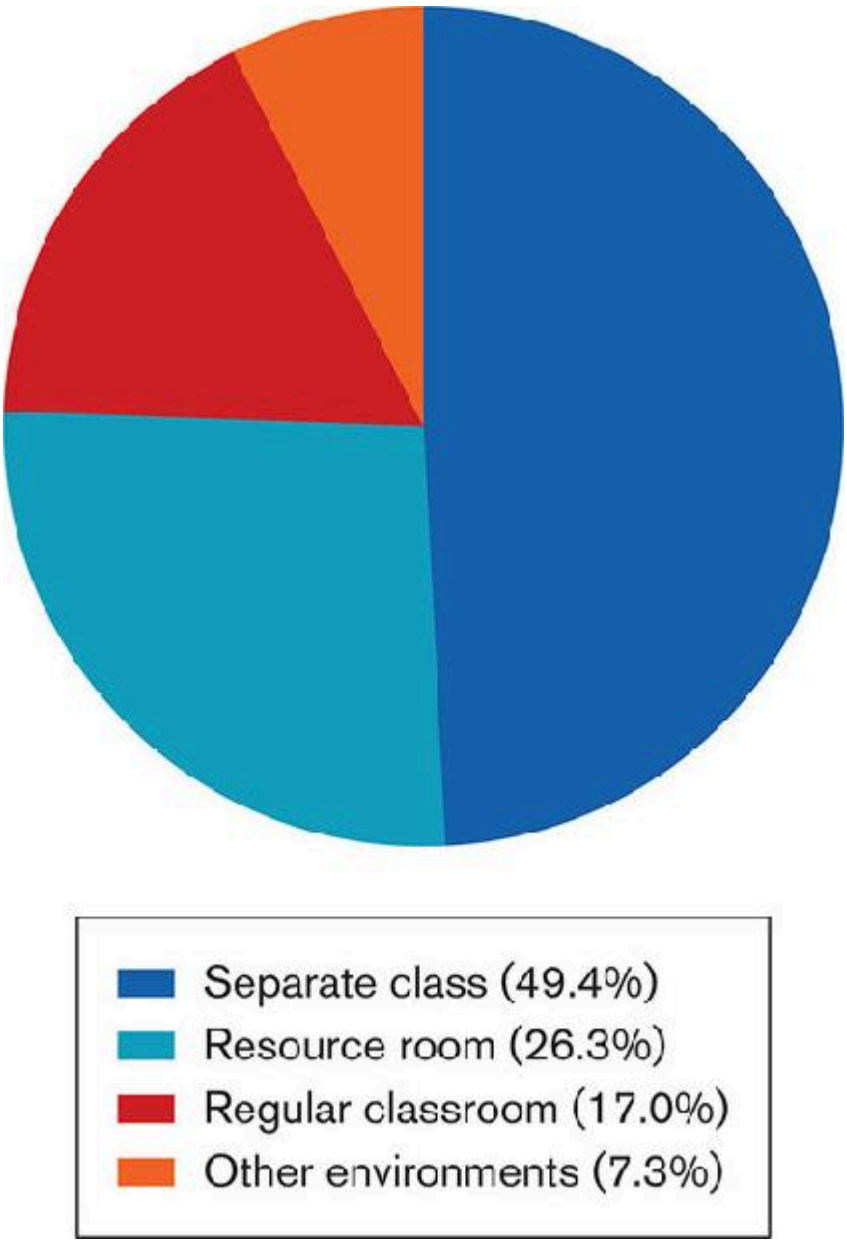
Educators and other professionals no longer consider students with intellectual disability to be incapable of learning. In fact, we believe that teachers should never underestimate the learning potential or ability of their pupils with intellectual disability. To be successful, however, they require an instructional program that is individualized to meet their unique needs. Additionally, the instruction provided to these learners must be comprehensive and functional, equipping them, to the maximum extent possible, with the experiences they need to live and work in their respective communities, both now and in the future. As with other pupils, our goal as teachers should be one of developing independence and self-sufficiency. Obviously, for this population of children, this objective dictates that an education be interpreted broadly and not construed solely as academic learning. As we explore the issue of educational opportunities for individuals with intellectual disability, you will discover that the concepts of individualization and appropriateness are of paramount importance.

In this part of the chapter, we will explore the various educational options available to children who are intellectually disabled and where these services are delivered. Our focus here is on school-age individuals; preschool and adult programming will be addressed in later sections.

Where Are Students With Intellectual Disability Educated?

Despite the contemporary trend toward educating children with disabilities in more normalized settings, pupils with intellectual disability are almost four times as likely as other students with exceptionalities to be educated in a separate class. Only about 13 percent of all individuals with disabilities were educated in self-contained classrooms during the 2016–2017 school year; however, almost half (49.4%) of youngsters with intellectual disability were placed in this environment during the 2016–2017 school year (U.S. Department of Education, 2018). Historically speaking, this administrative arrangement has characterized the delivery of educational services to pupils with an intellectual disability. Figure 6.2 portrays the educational settings where students with intellectual disability are typically served.

Figure 6.2 Educational Placements of School-Age Students With Intellectual Disability



Note: Figure represents percentage of enrollment of students ages 6–21 with intellectual disability during the 2016–2017 school year. Other environments represent placement in a separate school, residential facility, homebound/hospital environment, correctional facilities, or parentally placed in private schools.

Information based on data from forty-nine states, the District of Columbia, Puerto Rico, Bureau of Indian Education schools, and outlying areas. Data for Wisconsin not included.

Source: U.S. Department of Education. (2018). *Fortieth annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2018.* Washington, DC: U.S. Government Printing Office.

Educational Programming Options

Generally speaking, educational programming for pupils who are intellectually disabled reflects a marriage of various emphasis areas or focal points. Among these concentrations are functional academic skills, vocational training, community living, and self-help skills, along with a growing emphasis on exposure to the general education curriculum. Of course, the individual needs of the student must dictate how a specific educational program is constructed. Remember, children with an intellectual disability represent an especially heterogeneous population of learners with a wide range of skills and abilities. The curriculum designed for these pupils must be individualized, functional, and comprehensive. In addition, instructional programming for individuals who are intellectually disabled must be forward looking, giving due consideration to these students' current needs and future life goals (Gargiulo & Bouck, 2018b).

We cannot stress enough the importance of individually crafted instructional programs. A "one size fits all" approach for instructing individuals with intellectual disability is inappropriate. An effective curriculum must not only be individualized, emphasizing academic as well as adaptive skills; it must also be comprehensive (Cihak & Smith, 2018; Shurr & Taber-Doughty, 2018). A comprehensive curriculum for learners with cognitive limitations should, among other things,

- be responsive to the needs of the individual student at the current time;
- provide maximum interaction with peers who are not disabled and access to the general education curriculum, while also attending to specific curricular needs missing in the general education curriculum;
- be based on a realistic assessment of adult outcomes; and
- be sensitive to diploma requirements and graduation goals (Polloway, Patton, Serna, & Bailey-Joseph, 2018).

Functional Curriculum

A **functional curriculum** is one that instructs pupils in the life skills they require for successful daily living and prepares them for those situations and environments they will encounter upon leaving school. In a functional curriculum, academic skills are applied to everyday, practical life situations—for example, calculating change, following directions in a cookbook, reading washing instructions, or completing a job application. Known as **functional academics**, these skills are often the core of instructional programs for some individuals with mild or moderate intellectual disability. Additionally, these students are exposed to curriculum content focusing on personal hygiene, independent living skills, community resources, and other issues that, collectively, are designed to enhance their current and future independence and successful adjustment (Bouck, Taber-Doughty, & Savage, 2015; Taber-Doughty, 2018; Taber-Doughty & Shurr, 2018).

functional curriculum A curriculum that emphasizes practical life skills rather than academic skills.

functional academics The application of life skills as a means of teaching academic tasks; core of many instructional programs for students with mild or moderate intellectual disabilities.

A functional curriculum may be appropriate for some students with intellectual disability.

Getty Images/Maskot

Several approaches are available for teaching functional academics. Two of the more commonly used strategies are functional, generalized skills useful for life routines and embedded, academic skills appropriate to specific life situations. For some students, however, it may be necessary to simply bypass academic instruction (Browder & Snell, 2000). Browder and Snell (2000) recommend that the individualized education program (IEP) team consider the following six factors when selecting an instructional approach:

1. The student's preferences
2. The parents' preferences
3. The student's chronological age or number of years left in school
4. The student's current and future settings
5. The student's rate of learning academic skills
6. The student's other skill needs (p. 500)

Table 6.5 provides an example of the application of these instructional options.

Table 6.5 Approaches for Teaching Functional Academics

Table 6.5 Approaches for Teaching Functional Academics

Academic Approach	Learning Outcomes	Examples
Functional, generalized skills usable across life routines	Student will learn some pivotal skills (e.g., useful word and number recognition and counting) and use them in home, school, and community activities.	Sharon is mastering generalized counting skills. She can count dollars to make a purchase, objects to do simple addition in math class, and ingredients when cooking with her mother. She not only learns sight words related to daily activities, such as following her schedule, but also learns high-frequency words that she uses in reading and other academic subjects.

Academic Approach	Learning Outcomes	Examples
Embedded academic skills usable in specific life routines	Student will acquire an academic response as part of a daily life routine (e.g., use money to buy school lunch; use time and word schedule to organize day).	Juan has a sight word vocabulary of five words. He uses each of these words in a specific way. For example, he finds his name on a set of job cards at his work site. He can select a sweatshirt that has the name of his school to wear on school spirit day.
Adaptations to bypass academic skills	Student will learn to use adaptations that avoid the need for an academic skill (e.g., money envelopes, bus passes).	Because it is difficult for Lauren to count money, her teacher helps her use a predetermined amount of money to make purchases (e.g., a dollar for a soda).

Source: Adapted from M. Snell and F. Brown, *Instruction of Students With Severe Disabilities*, 5th ed. (Upper Saddle River, NJ: Prentice Hall, 2000), p. 498.

A functional curriculum is concerned with the application of skills to real-life situations. This requires that instruction occur as much as possible in natural settings, using actual items rather than mere representations in simulated settings. This instructional technique, known as **community-based instruction**, is appropriate for individuals with intellectual disability. This strategy eliminates many of the difficulties these pupils encounter when attempting to transfer and generalize skills learned in the classroom to other settings in which the skill is to be used. Simulated experiences, though useful, are often ineffective with this population. For example, reading a menu or shopping for groceries can easily be simulated in the

classroom; however, it is generally more effective when these particular skills occur in vivo, or in the actual environment. Research suggests that students with intellectual disability learn more efficiently and retain greater information if skill instruction occurs in a natural setting (Hartman, 2009; Taber-Doughty, 2018; Walker, Uphold, Richter, & Test, 2010; Wehman & Scott, 2013).

community-based instruction A strategy for teaching functional skills in the environment in which they would naturally occur rather than in simulated settings.

Variations of a functional curriculum are also appropriate for individuals identified as moderately intellectually disabled and, in some cases, for students with severe intellectual impairments. As with their higher-functioning counterparts, areas of emphasis—or domains, as they are sometimes called—are individualized based on the current and future needs of the student. Typical domains include self-help skills, socialization, communication, and vocational training, along with using community resources and exposure to very basic or "survival" academics. An example of this last domain might include functional or environmental reading of survival words and phrases such as *danger*, *exit*, *on*, *off*, *gentlemen*, *detour*, *fire escape*, *don't walk*, *keep out*, *beware of dog*, and other key protective vocabulary. Equally useful are career and vocational terms identified by Schilit and Caldwell (1980). Their list of 100 important terms includes words such as *boss*, *wages*, *tools*, *break*, and *first aid*. Arithmetic concepts might stress quantitative concepts such as big/little or more/less, telling time, learning telephone numbers and addresses, calendar activities, money recognition, and other types of functional numerical concepts. As noted previously, instruction should occur in the community using natural settings to maximize the meaningfulness and relevancy of the instruction and to allow for the integration of skills from other domains (Taber-Doughty, 2018). An illustration of this type of activity would be a trip to a local grocery store, where several different functional skills could be practiced. The goal of these activities, and others like them, is to decrease the students' dependence on others and to enhance their ability to live and work independently in their community.

Standards-Based Curriculum

In some instances, a functional curriculum approach may not be appropriate. The needs of some individuals with intellectual disability may best be served by exposure to both traditional academic subjects—in other words, the general education curriculum—and life skills, depending on the needs of the student and the wishes of the parents. As students get older and progress through school, however, there is sometimes a sense of urgency to incorporate a life skills curriculum in preparation for adulthood. Yet one perplexing challenge confronting both general and special educators is how to blend or integrate rigorous academic content standards with a life skills curriculum (McDonnell & Copeland, 2016; Polloway et al., 2018; Taber-Doughty & Shurr, 2018). Recall that IDEA 2004 mandates that the IEP team consider how the student will participate and progress in the general education curriculum regardless of the severity of his or her disability.

In some ways, a functional curriculum runs counter to the basic tenets of the philosophy of full inclusion with its emphasis on age- and grade-appropriate placement and thereby exposure to the general education curriculum. Does this philosophy mean that a student with intellectual disability should enroll, for example, in a geometry or foreign language class? In some instances, the answer might be yes; in other cases, this would be an inappropriate recommendation. The IEP team must identify academic skills that are aligned with the state's academic content standards while ensuring that the skills selected for instruction also allow the pupil to participate successfully in school, home, and community settings (McDonnell & Copeland, 2016; Taber-Doughty & Shurr, 2018).

We believe that all students with intellectual disability should be integrated, to the maximum extent possible, in classrooms and activities with their same-age peers who are not disabled. The general education classroom with its focus on the general education curriculum, however, is not necessarily the appropriate learning environment for all pupils with an intellectual disability. Some pupils will achieve greater educational benefit from a functional curriculum taught in settings outside of school. The key to an appropriate education for students with intellectual disability is

individualization. Just as all students in the general education classroom do not learn the same material, pupils with intellectual disability must have their instructional program developed around their unique characteristics and specific educational requirements.

Instructional Methodology

Once a decision is made about what to teach, educators are then confronted with the question of how best to instruct their students. These important issues are interrelated. Decisions that professionals make about what and how to teach pupils with intellectual disability are crucial for the students' success in school and later years (Taber-Doughty, 2018; Taber-Doughty & Shurr, 2018). We will now briefly examine representative instructional strategies that have proven effective with individuals with intellectual disability.

Instructional methodologies and accommodations that are often used with pupils with intellectual disability are the same ones that make learning successful for all students (Friend & Bursuck, 2019). Friend and Bursuck (2019) believe that general educators are capable of reasonably accommodating in their classrooms most students with special needs, including pupils with intellectual disability. To accomplish this goal, they recommend the following seven steps, which they call INCLUDE:

- **I**dentify classroom demands.
- **N**ote student learning strengths and needs.
- **C**heck for potential areas of student success.
- **L**ook for potential problem areas.
- **U**se information to brainstorm ways to differentiate instruction.
- **D**ifferentiate instruction.
- **E**valuate student progress. (pp. 139–140)

Strategies for Effective Teaching and Learning
Teaching Pupils With Intellectual Disability

While many suggestions and strategies exist that support effective teaching and learning for students with intellectual disability, one particular research-supported system is the use of prompting systems (Ayres, Mechling, & Sansosti, 2013). Prompting systems are a

form of antecedent instructional strategies; that is, they occur prior to the behavior, and typically involve picture, audio, or video prompts. A common approach to using prompting systems is when the student him- or herself operates the system; this is referred to as a self-operated prompting system. Educators can make their own self-operated prompting systems to support students with intellectual disability. The following chart provides steps educators can follow to create a picture, auditory, or video prompting system for a student with intellectual disability.

Steps for Developing a Self-Operated Picture, Auditory, or Video Prompting System

Steps for Developing a Self-Operated Picture, Auditory, or Video Prompting System

Self-operated picture prompting system	Self-operated auditory prompting system	Self-operated video prompting system
1. Identify the target task.		
2. Develop a task analysis.		
3. Determine types of pictures to use (drawings, photos, icons [e.g., Boardmaker by Mayer-Johnson]).	3. Determine "script" of auditory prompts.	3. Determine if student will use video prompting or video modeling.
4. Identify words (if any) that will accompany pictures.	4. Determine who will be the "voice" on the audio system (student, teacher, favorite paraeducator, parent) or whether a "tone" will be used to prompt the student to the next step.	4. Decide video point of view. (Will it be from the student's perspective? Will it depict the student or a different known or unknown individual engaged in the task?)
5. Identify how pictures will be presented (e.g., communication notebook, paper, or an electronic system such as a tablet or smartphone).	5. Determine the system for delivering auditory prompts (e.g., audio recorder, tablet, smartphone, MP3 player). Also, determine if headphones are needed.	5. Identify the system for delivering videos (e.g., DVD player, computer, tablet, smartphone).
6. Develop a prompting system and ask two novel individuals to complete the task using the self-operated system. Make edits based on individuals' performance.		

Self-operated picture prompting system	Self-operated auditory prompting system	Self-operated video prompting system
7. Determine if students will use self-management skills when using the self-operated system. Will students self-monitor their progress using a checklist? Will they engage in self-evaluation?		
8. Evaluate each student's performance as he or she uses the self-operated system.		

Source: E. Bouck, *Assistive Technology* (Thousand Oaks, CA: Sage, 2017), p. 164.

Adapted from E. Bouck, T. Taber-Doughty, and M. Savage, *Footsteps Toward the Future: Implementing a Real-World Curriculum for Students With Disabilities* (Arlington, VA: Council for Exceptional Children, 2015), p. 35. Copyright 2015 by Council for Exceptional Children.

This generic model is applicable to a variety of classroom settings. It is based on the assumption that student performance is a result of the interaction between the learner's characteristics and the instructional environment. By skillfully analyzing the student's learning needs and the requirements of the classroom, teachers are often able to maximize student success and accomplishment.

Similarly, Smith, Polloway, Taber-Doughty, Patton, and Dowdy (2016) recommend that teachers consider the following teaching and learning adaptations, which are designed to improve learning outcomes for students with intellectual disability:

- Ensure attention to relevant task demands.
- Teach ways to learn content while teaching content itself.
- Focus on content that is meaningful to the students, to promote learning as well as to facilitate application.
- Provide training that crosses multiple learning and environmental contexts.
- Offer opportunities for active involvement in the learning process. (pp. 160–161)

In our opinion, these suggestions are applicable to all pupils, not just individuals with intellectual disability.

Task Analysis

We begin with an approach known as **task analysis**, which is often identified with a functional or life skills curriculum. A functional curriculum is highly individualized whereby the teacher crafts each pupil's curriculum based on the skills and abilities that are part of the student's repertoire (Taber-Doughty, 2018). In task analysis, which is part of a behavioral approach to instruction, a complex behavior or task is broken down and sequenced into its component parts (Alberto & Troutman, 2017). Task analysis, according to Alberto and Troutman (2017), is the foundation for teaching complex functional and vocational skills to individuals with disabilities.

> **task analysis** An instructional methodology whereby complex tasks are analyzed and broken down into sequential component parts; each part is taught separately and then as a whole.

Alberto and Troutman (2017) offer working guidelines that define the basic steps for conducting a task analysis:

- Define the target behavior or task.
- Identify the prerequisite skills for learning the task: "What does the student need to know?"
- Identify needed materials to perform the task.
- Observe a competent person performing the task, and list the steps necessary for successful task completion in sequential order.

We believe that an additional component is necessary. Teachers must take steps to ensure that the student is capable of generalizing the particular skill to other settings. Recall that this is part of the reasoning for teaching functional skills in the student's natural setting.

Over the years researchers have used task analysis to teach a wide variety of daily living and vocational skills to individuals with varying degrees of cognitive impairment. Examples of these successful efforts include teaching key features of a cell phone to high school students with moderate intellectual disability (Walser, Ayres, & Foote, 2010), teaching individuals with moderate to severe intellectual disability how to purchase food in fast-food restaurants (Mechling, Pridgeon, & Cronin, 2005), teaching computer skills to elementary students with intellectual disability (Zisimopoulos, Sigafoos, & Koutromanos, 2011), teaching leisure time activities to adults with intellectual disability (Jared, Frantino, & Sturmey, 2007), and teaching postsecondary students with moderate to severe intellectual disability how to use a cell phone (Zionch, 2014).

Cooperative learning is a popular instructional strategy for teaching pupils with intellectual disability in inclusive settings.

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Cooperative Learning

Cooperative learning is another instructional intervention that educators frequently employ, especially when teaching pupils with intellectual disability in inclusive or integrated settings. Unlike most of today's classrooms, which tend to emphasize competition among students, cooperative learning encourages pupils with varying strengths and abilities

to work together toward achieving a common goal. **Cooperative learning** can be defined as an instructional technique in which small, heterogeneous groups of learners are actively involved in jointly accomplishing an activity or assignment. The teacher structures the task in such a fashion that each pupil significantly contributes to the completion of the activity according to his or her ability. Although recognition and rewards are based on group performance, the success of each individual directly affects the accomplishments of his or her classmates (Johnson, Johnson, & Holubec, 1998, 2009).

> **cooperative learning** Instructional process whereby heterogeneous groups of students work together on an assignment.

Cooperative learning, which can take many different forms and be used across multiple subject areas, requires careful planning and consideration of the needs and abilities of each team member. Pupils with disabilities, for example, may require special preparation and support to ensure their maximum participation (Johnson et al., 1998). Teachers may need to review specific social skills with their students with intellectual disability in order for them to successfully participate and benefit from this experience.

Cooperative learning has been shown to increase the opportunities for students with disabilities to experience success in school (Lewis, Wheeler, & Carter, 2017). Cooperative learning benefits all pupils, contributes significantly to student achievement, enhances the self-esteem of individuals with special needs, and increases the acceptance and understanding of children with disabilities (Smith et al., 2008).

Scaffolding

Our final example is a teaching strategy called **scaffolding**. This technique is especially applicable to students with intellectual disability, who are often characterized as “inactive” or “passive” learners. The aim of this approach is to help pupils become independent, proficient problem solvers. Scaffolding is a cognitive approach to instruction. In this teacher-directed

strategy, various forms of support are provided to students as they initially engage in learning a new task or skill. As the student becomes increasingly competent, the supports or "scaffolds" are gradually removed.

scaffolding A cognitive teaching strategy in which the teacher provides temporary support to a student who is learning a new task; supports are gradually removed as the pupil becomes increasingly competent with the activity.

Vaughn and Bos (2015) describe scaffolding as a way of

> adjusting and extending instruction so that the student is challenged and able to develop new skills. The teacher provides the supports that give students opportunities to meet objectives and to explain their learning. The teacher can scaffold instruction to meet the needs of the students by manipulating the task, materials, group size, pace, presentation, and so on. The metaphor of a scaffold captures the idea of an adjustable and temporary support that can be removed when it is no longer needed. (p. 21)

This instructional method begins with what the pupil already knows and attempts to connect new information with previously learned material. New information is presented in a logical sequence, building on the student's knowledge base. Pupils are then given the opportunity to apply and practice what they have learned. Suggestions for using this instructional technique can be found in the accompanying Strategies for Effective Teaching and Learning feature.

These three examples are by no means the only instructional models appropriate for students with intellectual disability. Other approaches, such as direct instruction and learning strategies (discussed in Chapter 7), are also useful.

Strategies for Effective Teaching and Learning
Using Scaffolding in the Classroom

- **Introduce the concept.** The teacher lists all of the steps in the strategy using concrete illustrations, then models the strategy.
- **Regulate difficulty during guided practice.** The strategy is presented one step at a time using simplified situations. Pupils are guided through the process with the teacher providing assistance.
- **Provide varying contexts for student practice.** Students initially practice the strategy using authentic problems under the guidance of their teacher. Pupils eventually conduct practice sessions in small-group settings.
- **Provide feedback.** The instructor provides constructive feedback. Evaluative checklists are available so students can self-evaluate their performance.
- **Increase student responsibility.** Students are required to use the strategies independently. As pupils become increasingly proficient, supports are gradually decreased. The teacher evaluates for student mastery.
- **Provide independent practice.** Students are provided with extensive opportunities for practice and apply the steps to novel situations. (Friend & Bursuck, 2019)

Making Inclusion Work
Individuals With Intellectual Disability

As an eighth-grade English language arts teacher with over a decade of teaching experience, I find teaching to be a new adventure every day.

I strive to enhance the learning opportunities for all of my students. Many of my current students are struggling writers, as identified by teachers from previous years. Keeping these students involved, interested, and yearning to learn, but at the same time making sure that every child is challenged and thriving, can sometimes be a difficult task. But I have asked for this setting because I want to rise to the occasion and see my students succeed.

Inclusive Education Experience

Working in an inclusive classroom takes careful planning. First, I make sure that I know my students' abilities and needs. I make the classroom inclusive of all learners, which builds a positive community. I have had students in my regular English classes who are visually impaired, students who are in wheelchairs, and students who are self-contained in another teacher's room except for reading class. I have come to understand the importance of community and peer support. The teacher in any classroom, but especially the inclusive classroom, becomes the coach or facilitator of learning. Since the children come to school at multiple levels of learning, the teacher must meet the student where he or she is in the learning process and build from that point.

The challenge lies in assisting each child at his or her level and moving him or her along in the learning process. With one teacher and a class of twenty-five learners, moving around the class to help every child is difficult. The student–teacher ratio is high in the regular education class. Another challenge is keeping up with the paperwork that informs the teacher of the accommodations or modifications in the child's individualized education program (IEP). Third, a child who is too challenged or is not challenged enough can become frustrated, which may lead to other disruptive classroom issues. Finally, having all of the students involved in learning at the same time with material that everyone can understand is a challenge. Some students may feel comfortable reading lower-level books while others need more advanced materials. As their teacher, I am responsible for teaching them all.

I am constantly working on resolutions for my dilemmas, however, and I come closer to my answers every day. I rely on my colleagues for ideas that work in their classes. We have an idea exchange at team meetings as we discuss pedagogy and students. I learn from reading professional articles and books. I have always individualized my instruction, but I have learned to do it more effectively.

Strategies for Inclusive Classrooms

Collaboration with special education teachers is a must. They have teaching tips that work well with all students.

- Accommodate instruction and assignments as needed to ensure success for all students, not just those with IEPs; however, only modify assignments for those students who have IEPs. Simple accommodations include providing a word bank for vocabulary quizzes, a study guide before a test, rubrics before a project, a copy of class notes, a book on audiotape, and the use of a computer. Testing or quizzing accommodations include reading a quiz or test aloud to a student, allowing the student to read the quiz or test aloud, explaining directions or language, reducing the number of choices but covering the same objectives, extending the time permitted, allowing the student to dictate his or her answers, allowing mistakes to be corrected for extra points, or allowing a test to be retaken for an average of both scores.
- Understand the importance of presentation. Type assignment directions, activity sheets, quizzes, and tests in a larger font size such as 14 point to make the print easier to read. Be sure the print is clear and legible for the student. Allow students to use a note card to read line-by-line multiple-choice answers separately. Allow for white space around directions so the students will not confuse the directions with the actual test or quiz questions.
- Teach students that organization is pertinent to learning success. Allow a peer to help a student organize his or her notebook. Often a student has difficulty studying because he or she lacks the organizational skills needed to prepare for tests or quizzes.
- Realize that students are often embarrassed to ask for help during class. Periodically monitor students' progress throughout class by individually inquiring with each student about his or her progress. Be available before and after school for study sessions and in between classes for additional assistance.
- Make sure students are on task by walking around their desks and prompting them to return to the task at hand if they are not working diligently.
- Elicit the aid of parents in a three-way partnership among student, parents, and teacher. Communicate the progress of the student through the student's daily assignment agenda. For example, have the student record any special assignments or daily homework in an agenda. This teaches the student the responsibility of finding out the daily requirements expected of him or her. As a teacher, read the student's agenda and clarify any mistakes or omissions the student may have made, record any newly earned grades, and comment on the student's progress. At night, parents also check the student's agenda and communicate any questions or comments by writing in the student's agenda for the teachers to read the following day.

Working With Parents and Families

Parents want to be informed. When a student does not do well on an assignment or seems to fall behind in class, contact the parents via email, phone, or note or in person to inform them of their child's progress or any concerns. Parents also enjoy seeing samples of their child's classwork. For instance, sending home a portfolio during each grading period gives parents an opportunity to see growth in writing skills or progress in reading comprehension. A commentary sheet requesting parents and child to analyze the enclosed work is an excellent means of feedback for teachers. This process of commenting on favorite pieces of writing and selecting a writing piece for publication in a contest or school literary magazine also causes the child to reflect on his or her improvements.

Hosting parent seminars as a team of teachers once a semester on topics such as "Boosting Your Child's Study Habits," "Interpreting SAT-10 Scores" with an emphasis on building on strengths and improving weaknesses, and "Improving Reading Comprehension With Reading Strategies" provides an avenue for improving students' learning with the collaboration of students, parents, and teachers. Parents often desire to help their child at home but are not always equipped with the necessary tools to do so. Through parent seminars, parents learn strategies they can use at home to reinforce the learning that takes place at school. Parents learn of these seminars and other events through team newsletters that are distributed with report cards or progress reports during each grading period.

Each effort at communication through phone calls, notes, person-to-person contact, or email is recorded in my communication log, including the name of the person with whom I spoke, the means of communication, the time and date, and a brief description of the conversation. This helps me to remember the conversation's details in case I need to follow up with the student and parent in the future.

Advice for Making Inclusion and Collaboration Work

My advice to new teachers working in inclusive settings would be to learn as much as possible not only about a student's academic needs but also about the student as a person. Sometimes just knowing about a student's personal interests can be a catalyst to help him or her improve learning. Learn about the student's academic performance and needs by talking with the special education teacher and reviewing last year's report card, standardized test scores, and portfolio. Learn about the student's personal interests by having the student complete a reading and writing questionnaire, participate in book talks or reading/writing conferences, and observe the student interacting with other students. Use the knowledge that you have gained to improve students' learning progress.

Knowing a child's learning styles, needs, and strengths allows you to approach the child's difficulties and challenges with new insight. This also shows the student that you care about him or her as an individual and not just as a member of a class. Finally, do not be afraid to continue to elicit the help of parents, special education teachers, other team teachers, counselors, administrators, and other education professionals who work directly with the child. Sharing ideas and collaborating with others will greatly benefit all involved.

—*Tonya Perry*

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One of the four national finalists, National Teacher of the Year 2001

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Technology and Individuals With Intellectual Disability

Students with intellectual disability, like all pupils with disabilities, use and benefit from a variety of technology, including low-tech (for example, picture symbols), mid-tech (for example, audio recorders), and high-tech (for example, iPads). Like other learners with disabilities, assistive technology can support students with intellectual disability across academic subjects, behavior, and life skills. With academics, for example, students with intellectual disability may benefit from picture symbols when accessing printed text or using a calculator to help solve a mathematics problem. **Augmentative and alternative communication (AAC)** devices can support the life skills of individuals with intellectual disability and complex communication needs by providing them an alternative or supplemental means of communicating, such as picture symbols, a dedicated speech-generating device, or an app on an iPad. Technology to support life skills of pupils with intellectual disability can also include self-operated prompting systems (see the Strategies for Effective Teaching and Learning feature, page 175). Finally, assistive technology can support behavior of students with intellectual disability, including organization (for example, visual schedules), note-taking (for example, a Livescribe™ pen), and monitoring of their own on-task behavior (for example, by receiving an audio or tactile signal or recording their performance on a mobile device).

augmentative and alternative communication (AAC) Symbols, aids, strategies, and techniques used as a supplement or alternative to oral language.

Spotlight on Technology

Augmentative and alternative communication (AAC) devices are tools that enhance or provide alternative means of communication for students with disabilities (Hanline, Nunes, & Worthy, 2007). A variety of AAC devices exist, from low-tech (no power

source) to high-tech (computer-based), to aided (external to the user) and unaided (the user's body), to dedicated devices (tools specifically designed to be AAC) and nondedicated options (ones designed for other purposes but that can support communication such as an iPad) (Bouck, 2017).

Unaided AAC	Aided AAC		
	Low-Tech	Mid-Tech	High-Tech
• Sign language • Signing Exact English (SEE)	• Picture Exchange Communication Systems® (PECS®) • Eye gaze displays (or eye-transfer board) • Communication books or boards	• GoTalk Button or GoTalk 9+ (from Attainment) • SuperTalker Progressive (from AbleNet)	• iPad apps (e.g., Proloquo2Go®, SoundingBoard, and Scene Speak) • I-12+ (from Tobii Dynavox) • Accent series (from Prentke Romich)

Services for Young Children With Intellectual Disability

The importance of early intervention for young children identified as, or suspected of being, intellectually disabled cannot be overestimated. Early intervention can be defined as the services and supports rendered to children age 3 and younger with disabilities, or those who evidence risk factors, and their families. Early intervention represents a consortium of services—not just educational assistance but also health care, social services, family supports, and other benefits. The aim of early intervention is to affect positively the overall development of the child—his or her social, emotional, physical, and intellectual well-being. Thanks to the work of social scientists from various disciplines, federally funded research projects, and the impact of legislation such as PL 99–457 (the Education of the Handicapped Act Amendments of 1986), significant advancements have occurred in this arena. As a result, the quality of life for countless youngsters with intellectual disability and other impairments has been improved.

Hickson, Blackman, and Reis (1995) describe two main goals of early intervention for young children with intellectual disability. The focus of these efforts varies, depending on the severity of the impairment. For preschoolers considered to have moderate or greater degrees of intellectual disability, the main emphasis is on furthering their development by reducing delays in reaching significant developmental and cognitive milestones, such as walking or talking. (Similar programs that focus on infants with intellectual disability, such as babies with Down syndrome, are frequently identified as **infant stimulation** programs.) Some youngsters may also profit from programs that stress functional objectives centered on activities of daily living. Children thought to have a mild intellectual disability and those considered to be at risk will benefit from programs whose chief aim is to prepare these young students for successful academic experiences upon entering school. These experts go on to state that the primary objectives of early intervention for young children with less severe cognitive limitations

are “(1) to minimize and, if possible, reverse the impact of delays or deficits in normal cognitive development on later school performance; and (2) to support family efforts to achieve desired intellectual, vocational, and social outcomes” (Hickson et al., 1995, p. 223). The second goal, in our opinion, seems to be appropriate for all individuals with intellectual disability regardless of their age or severity of impairment.

infant stimulation Programs for infants with disabilities or those experiencing delays; emphasis usually on achieving developmental or cognitive milestones.

To these two laudable goals we would like to add a third objective: prevention of intellectual disability. You may remember that in Chapter 1 we reviewed the benefits of early intervention for young children who were at increased risk of delayed development and possible intellectual disability due to environmental factors such as poverty and related conditions. Gargiulo and Kilgo (2020) identify these children as being **environmentally at risk**. Children who are at risk or highly vulnerable for cognitive impairments include youngsters with **established risk**—that is, children with a diagnosed medical disorder of known etiology and a predictable outcome or prognosis, such as Down syndrome or fragile X syndrome. In other cases, infants, toddlers, and preschoolers who are **biologically at risk** for intellectual delays and deficits because of low birth weight, prematurity, fetal alcohol syndrome, or HIV infection often profit from involvement with early intervention activities.

environmentally at risk Youngsters who are biologically typical yet encounter life experiences or environmental circumstances that are so limiting that there is the possibility of future delayed development.

established risk Youngsters with a diagnosed medical disorder of known etiology and predictable prognosis or outcome.

biologically at risk Young children with a history of pre-, peri-, or postnatal conditions and developmental events that heighten the potential for later atypical development.

It is important to keep in mind that early intervention programs for youngsters with intellectual disability, regardless of the severity of cognitive impairment, are not designed as “anti–intellectual disability vaccinations”; rather, they are a first step in a comprehensive, coordinated, and ongoing effort aimed at enhancing the child’s potential in all areas of development. Combating the deleterious effects of intellectual disability will require a coordinated effort among parents, professionals, advocates, and government officials.

Today, many early intervention programs are structured around a concept known as **family-centered early intervention**. Although the needs of young children with disabilities are an important intervention focus, early interventionists and other service providers are becoming increasingly aware that the needs of youngsters are often inseparable from those of their family. Young children with special needs frequently require a constellation of services based not only on their specific needs but also on the differential needs of the family unit. Family-centered early intervention embraces a positive view of the youngster’s family; professionals now talk about enabling and empowering families rather than viewing the child and his or her family as having deficits that necessitate intervention to “fix” the problem. This movement away from a deficit model reflects contemporary thinking (Gargiulo & Kilgo, 2020).

> **family-centered early intervention** A philosophy of working with families that stresses family strengths and capabilities, the enhancement of skills, and the development of mutual partnerships between service providers and families.

An emphasis on family-centered early intervention characterizes many early childhood special education programs, but it is important to remember that the delivery of services is customized to meet the unique needs of the child as well as the family. Besides the importance attached to individualization, effective programs are comprehensive, normalized, and outcome based, and provide for interactions between typical youngsters and those with a disability. These benchmarks are appropriate regardless of the curriculum orientation adopted. Common approaches include a developmental model based largely on the theorizing of Jean Piaget, an

operant or behavioral approach consistent with the work of B. F. Skinner, the Montessori method, and a functional curriculum representing a hybrid of the first two approaches. Beirne-Smith et al. (2006) note that no one approach has been shown to be clearly superior to the others and stress that "curriculum should be chosen based on the individual needs of the child and the family" (p. 340).

Transition Into Adulthood

Adolescence is a time of transition and, for individuals with intellectual disability, one that is often difficult and stressful. Transition from high school to adulthood is a time when young adults with intellectual disability "face multiple responsibilities and changing roles that include establishing independence, attending postsecondary education or training, developing social networks, choosing a career, participating in their communities, and managing healthcare and financial affairs" (Wehmeyer & Webb, 2012, p. 3). For many adolescents with intellectual disability, this journey is not a successful one. Becoming a productive, self-sufficient, and independent adult remains an elusive goal.

Graduates of special education programs typically do not participate fully in the economic and social mainstream of their communities. Today, unfortunately, many individuals with intellectual disability either are underemployed or remain unemployed (Kessler Foundation, 2015). Besides employment difficulties, researchers have found that for many citizens with intellectual disability, independent living is an objective not yet attained (Kessler Foundation & National Organization on Disability, 2010; Newman, Wagner, Cameto, & Knokey, 2009). The preceding evidence suggests that professionals must do a better job of planning timely transitioning experiences for adolescents with intellectual disability if they are to reach their full potential as adults.

Many adults with intellectual disability are capable of working successfully in the community.

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Transition planning is a shared responsibility of educators and other school personnel, adult service providers from the community, family members, and, perhaps most important, the student. It is a comprehensive and collaborative activity focusing on adult outcomes that are responsive to the adolescent's goals and vision for adulthood. Meaningful transition planning requires that adult team members listen to and respect the desires and preferences of the student for his or her own adult lifestyle (Wehmeyer & Shogren, 2018). One recent report (Liu et al., 2018) found, however, that only two out of three young adults with intellectual disability met with school personnel to develop transition plans. Surprisingly, only 44 percent of these same students provided input into their transition plan. Equally disappointing is that only 65 percent of parents of adolescents with intellectual disability met with high school staff to develop their child's transition plan. This represents a statistically significant decrease from an earlier survey in 2003 when almost 80 percent of parents met with teachers and other professionals to construct a transition plan.

Successful adjustment as an independent adult requires careful planning commencing long before graduation from high school. Public Law 108–446, which reauthorized IDEA, requires that transition services begin no later than the first IEP in effect when the student turns 16 (and be updated annually). This legislation also established a new requirement for postsecondary goals pertaining to appropriate education, training, employment, and independent living skills. One benefit of this requirement is the growing number of community college and university programs that now offer postsecondary education experiences to individuals with intellectual disability. Two examples are UI REACH at the University of Iowa (www.education.uiowa.edu/services/reach) and FUTURE at the University of Tennessee (http://futureut.utk.edu). These innovative programs allow students with intellectual disability to have postsecondary experiences similar to peers without disabilities. Think College (2019) offers a searchable database (https://thinkcollege.net) of postsecondary opportunities that cater to students with intellectual disability.

In earlier chapters, we reviewed the requirements for effective transition planning and the key elements of an individualized transition plan, or ITP. Here we focus on the area that is probably preeminent in transition planning for adolescents with intellectual disability: employment.

For most individuals, with or without intellectual disability, work is an important part of daily life. Work is often used as a gauge of social status, financial success, and personal fulfillment, and is a vehicle for opportunities to participate in one's community. Oftentimes uninformed persons believe that individuals with intellectual disability are incapable of obtaining and holding a job. This is simply not true, even though employment rates for adults with intellectual disability are dismal—especially for young women with intellectual disability (Kessler Foundation & National Organization on Disability, 2010; National Longitudinal Transition Study 2, 2009). Generally speaking, with appropriate training, individuals with intellectual disability are able to secure and maintain meaningful and gainful employment. Persons who are intellectually disabled make good employees. In those cases where they are unsuccessful on the job, it is frequently due not to their skill level or job performance but to a lack of interpersonal and social behaviors appropriate to the workplace.

Training is often the key to successful employment, and it begins during the transition period. Historically speaking, early job training programs centered on a model known as a **sheltered workshop**. At one time, this was a very popular training option, particularly for individuals with moderate or severe intellectual disability, who typically require long-term and intense support. Sheltered workshops are generally large facilities that provide job training in a segregated environment. Clients, as the workers are called, typically work on contract jobs that are often repetitive in nature and require low skill level—for instance, sorting "junk mail" inserts. Typically, these jobs are of short duration and offer the clients minimal job training. Placement in a sheltered workshop may, in some cases, be transitional to obtaining employment in the community, but it is more likely to be a permanent position.

sheltered workshop A structured work environment for persons with disabilities in which vocational and social skills are often the focus of attention; may be a temporary or permanent placement.

In recent years, sheltered workshops have come under fire. Critics (Migliore, Mank, Grossi, & Rogan, 2007; Simmons & Flexer, 2013; Siperstein, Heyman, & Stokes, 2014) have focused their attention on the low wages paid to workers, the segregated work setting, the absence of meaningful training, and the failure to move clients into competitive employment. This dissatisfaction, coupled with the contemporary movement toward more integrated and normalized experiences for individuals with intellectual disability, has given rise to the notion of **supported competitive employment**. In this model, which has proven effective in preparing adolescents for employment in community settings, an individual with intellectual disability is placed on a competitive job site alongside other workers who are not disabled. A **job coach** or employment specialist provides on-the-job assistance and support to the worker with intellectual disability. This person's role is to train the adolescent with intellectual disability on the specific job requirements and then, as everyone hopes, to decrease support services as the employee becomes more proficient. Job coaches are also usually responsible for locating the job and matching the needs of the employer to the abilities of the student (worker).

supported competitive employment At a work site for typical workers, individuals with disabilities are employed and work alongside their typical peers but receive ongoing assistance from a job coach.

job coach An individual who supervises a person with a disability for all or part of the day to provide training, assistance, or support to maintain a job.

The use of a supported competitive employment model has grown significantly over the past decade; it has been shown to be a cost-effective strategy with benefits accruing to both employer and employee (Beirne-Smith et al., 2006; Simmons & Flexer, 2013). Researchers have found that individuals with intellectual disability who are prepared using this approach tend to function better in competitive employment settings than persons

who have experience only in sheltered workshops (McDonnell, Hardman, & McDonnell, 2003), in addition to reporting higher job satisfaction (Test, Carver, Evers, Haddad, & Person, 2000). Employment opportunities typically range from entry-level custodial or food service positions to jobs in various high-technology industries.

Although this model is in keeping with contemporary thinking regarding self-determination (discussed in the next section of this chapter), supportive competitive employment has its limitations. Some of the drawbacks include excessive dependence on the job coach, disruption of the work environment by the presence of the job coach, and differential performance when the job coach is on-site (Simmons & Flexer, 2013). These disadvantages have contributed to the idea of using coworkers as natural supports (Mank, Cioffi, & Yovanoff, 2003). These individuals typically function as mentors and friends, offering valuable assistance and encouragement as needed to workers with intellectual disability.

For many young adults with intellectual disability, competitive employment is a realistic goal. By providing early and carefully crafted transitioning experiences, schools can maximize the probability that students with intellectual disability will have successful postschool adjustment, not only in the area of employment but in other domains as well.

Adults With Intellectual Disability

Over the past several years, professionals and advocates alike have devoted increased attention to the needs of adults with intellectual disability. For some of these individuals, successful adjustment to the community is an appropriate and achievable objective. For all intents and purposes, they are no different from most adults without disabilities, although at times they may require (as others sometimes do) support and assistance from family members, friends, coworkers, or social service agencies. Here we will focus on the community adjustment of adults with intellectual disability who require more intense and ongoing support.

Earlier in this chapter, we introduced the principle of normalization, defined as "making available to the mentally retarded [intellectually disabled] patterns and conditions of everyday life which are as close as possible to the norms and patterns of the mainstream of society" (Nirje, 1969, p. 181). The principle of normalization attempts "to establish and/or maintain personal behaviors which are as culturally normative as possible" (Wolfensberger, 1972, p. 28). The overarching philosophy is that individuals with intellectual disability (and other disabilities) should be integrated, to the greatest extent possible, into all aspects of daily life such as employment, recreation, living arrangements, and other areas of community life.

The principle of normalization has given rise to the belief that individuals with intellectual disability, especially those with more severe cognitive impairments, have a right to make their own choices and decisions in life and to become as independent as possible—in short, to have some degree of personal control over their own lives. These decisions may be as simple as what to watch on television, what time to go to bed, or which dress to wear, or they may involve more profound choices, such as where to live and with whom. This decision-making capacity is often referred to as **self-determination** or, to use AAIDD terminology, self-direction. Self-direction is often seen as a crucial component for success in later adult life for individuals with intellectual disability (Wehmeyer & Shogren, 2018).

Although self-determination is a critical adaptive skill, educators should bear in mind that self-determination reflects North American and Western European ideals and beliefs; other cultures may not value independence and personal decision making as highly as European Americans. Teachers, therefore, are strongly encouraged to consider the cultural preferences and heritage of their pupils when formulating instructional strategies for developing skills in self-determination (Turnbull, Turnbull, Erwin, Soodak, & Shogren, 2015).

self-determination Self-advocacy efforts by an individual with a disability; expression of desire to live one's life according to one's own wishes; assuming personal control over one's life.

Persons with intellectual disability are seeking greater control over their lives and fuller participation in all aspects of society.

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Because free choice is typically a restricted activity for large numbers of adults with intellectual disability, **self-advocacy** is gaining in both popularity and importance. People with intellectual disability are encouraged, via self-help groups, to speak out on issues of personal importance, such as living arrangements and personal relationships. The purpose of self-advocacy is for individuals with intellectual disability to gain greater personal control over their lives and to foster their own independence. Self-advocacy empowers people and helps them to

assertively state their needs, wants, and desires. Of course, successfully adjusting to life in one's community requires more than skills in self-determination and self-advocacy; it is also predicated of acceptance and support from the general public.

self-advocacy Speaking out for one's personal preferences; protecting one's own interests.

Family Issues

A child with intellectual disability (or any other disability) typically elicits a wide range of emotional responses, which can vary from anger and denial to awareness and acceptance. Additionally, parents may worry about financial obligations, educational concerns, the impact of the disability on siblings, long-term care requirements, and a host of other fears. These families often require understanding, assistance, and support. The importance of a natural support network, which may include coworkers, neighbors, friends, aunts and uncles, and other family members, should not be underestimated (McDonnell et al., 2003). For many parents of children with disabilities, these individuals, and not professionals, serve as the “first line of defense” in dealing with a child who is recognized as intellectually disabled. Other parents of youngsters with Down syndrome, for example, can often provide sensitive assistance and serve as a valuable resource on community services for infants with special needs. Long-term and mutually sustaining relationships are frequently established between parents of children with intellectual disability because of this common connection. Support is necessary because a child with intellectual disability may significantly affect the structure, function, and overall development of the entire family constellation (Gargiulo & Kilgo, 2020). In this case, valuable assistance is available from The Arc, a national organization on intellectual disability, which offers information and support not only to parents but also to siblings and other family members, such as grandparents.

It is impossible to predict how a family will respond to a child with intellectual disability. This term means different things to different families. As a society, we must value all families and should not overlook the potential benefits that an individual with intellectual disability brings to his or her family. See the accompanying First Person feature written by a young adult with Down syndrome.

First Person: Meredith
In Her Own Words

What can you tell us about yourself and your family?

I am Meredith, age 22, and I live with my parents in Alabama. I have a younger brother named Zach. One of my favorite childhood memories is dressing up at Halloween. Zach was Captain Hook, and I was Peter Pan, and another time he was a cowboy and I was an Indian. We also had fun at Christmas, which is my favorite holiday to celebrate. My family has many traditions I enjoy. One is getting an ornament each year to remind us of our interests, like my Barbie Doll collection, and my two former dogs, Scamper and Misha.

What do you like to do in your free time?

For fun, I go out with my boyfriend, Matthew, or my girlfriends. Matthew and I usually go out to dinner and a movie. We take turns having dinner at each other's house, and we love watching the Three Stooges videos. I'm also involved with People First, a self-advocacy group for people with disabilities. I am the chaplain and open the meeting with words of encouragement about having a positive attitude. At church I help out in the fourth-grade Religious Education classroom. I also volunteer for the North Shelby County Library and Alabama Wildlife Rehabilitation Center.

What can you tell us about your experience at school?

I graduated from Oak Mountain High School. During high school, I was nominated for the Homecoming Court, and was voted Best Choral Student. I really enjoyed high school because it had a great atmosphere and I had many friends. My favorite subjects were government, choir, and environmental science. I also liked our pep rallies and football games. My least favorite subject was math. My best high school memory is getting to be in the Macy's Thanksgiving Day parade. We walked three miles singing and dancing in New York City, where it was very cold. Some of the challenges were trying to be smart and independent. While in high school I joined the Special Olympics Rhythmic Gymnastics Team, and I still compete today. I also am on a Special Olympics bowling team.

What can you tell us about your work background?

During my senior year, I started to get work experience. I got to work at a video store, a card shop, a restaurant, and Jefferson State Community College. My first real job was at a department store, where I helped organize and fold clothes. I don't have a job right now, but I'm working with my job coach to find one. I'd like to work in an office or clothing store.

What do you see yourself doing in the future?

My dream for the future is to have a job, live in my own place, and maybe one day get married. My grandmother, who was very sweet, is my role model. She was a very strong

woman and never complained even though she had diabetes for over fifty years. She always encouraged me to be healthy and take care of myself.

What is one thing you want people to remember about you?

I would like people to know that I love my life.

When our daughter, Meredith, was born with Down syndrome, we faced numerous medical, social, and educational challenges. We had no way of knowing that very soon we would become partners with doctors; speech, physical, and occupational therapists; early interventionists; teachers; job coaches; and other advocates who value the rights and dignity of individuals with disabilities. This partnership has created lasting bonds of friendship, changed attitudes, strengthened inclusive educational practices, and allowed Meredith to achieve many goals.

Meredith's literary abilities have far exceeded our earliest expectations. She is an excellent reader with incredible spelling and comprehension skills. Her passion for learning and wanting to educate herself is remarkable. Meredith is a delightful, self-confident young woman with a sense of humor; knows no prejudice; and loves unconditionally. Meredith is an extraordinary person trying to live an ordinary life, and we are blessed to be her parents.

Issues of Diversity

A long-standing concern exists among special educators about the misclassification and/or inappropriate placement of students from culturally/linguistically diverse backgrounds in special education programs. All too often, diversity is incorrectly linked with disability. It is indeed unfortunate that children from minority groups are frequently seen as deviant or disabled.

The issue of racial and cultural diversity is intricately interwoven into the fabric of American special education. It is related to discussions of identification, assessment procedures, etiology, educational placement, and intervention. The overrepresentation of children of color is particularly relevant to a discussion of intellectual disability. African American youth, for example, are twice as likely to be identified as intellectually disabled than their peers (Harper, 2017; U.S. Department of Education, 2018). Drew and Hardman (2007) observe that individuals are often misdiagnosed as intellectually disabled when, in fact, their behavior is more a reflection of cultural differences than an indication of reduced or impaired functioning.

We acknowledge that the overrepresentation of minorities in special education classes, especially programs for children with intellectual disability, is a multifaceted problem with contradictory research findings (Morgan et al., 2015). Contributing factors range from culturally biased assessment instruments to the insidious role of poverty to teacher bias and expectation. The challenge that continually confronts educators and other professionals is how to combat this problem. The answer to this perplexing issue has eluded special educators for much too long.

Trends, Issues, and Controversies

As we conclude this chapter, we hope that you have gained an understanding of and appreciation for the many complex and often related issues surrounding the subject of intellectual disability. Topics such as amniocentesis and the accompanying question of abortion, test bias and the overrepresentation of children of color in programs for students with intellectual disability, concerns about appropriate placement, and thoughts about the quality of life of persons with intellectual disability are only some of the many issues that have captured the attention of parents, educators, policy makers, advocates, legislators, and a host of other concerned individuals.

Like others, we too are concerned about where we have been, where we are today, and what the future holds for the field of intellectual disability. Understanding the present state of affairs is often beneficial when contemplating where we might be headed. In fact, the past is often seen as a prologue to the future. With this in mind, we must point out that although individuals with intellectual disability will most likely benefit from advances in technology, medical breakthroughs, new legislation, and a host of other beneficial developments, attitudinal change is frequently the precursor of a change in the delivery of services and the recognition of the rights of our fellow citizens with disabilities.

Attempting to anticipate where the field of intellectual disability is going is perhaps best left to the futurist or the clairvoyant. This disclaimer notwithstanding, our vision of the future includes the following:

- More community-based activities will be available across several domains, including employment, education, and residential options.
- There will be a growing emphasis on the application of assistive technology to meet the needs of the person with intellectual disability; to varying degrees, individuals with intellectual disability will join the information age.

- Quality of life and normalization across the life span will become increasingly prominent national advocacy issues.
- Human services providers as well as communities will be confronted with a growing geriatric population with intellectual disability.
- Biomedical research and well-designed psychosocial interventions will lead to a reduction in the number of people identified as intellectually disabled.
- More inclusive educational placements will be the norm for students with significant cognitive impairments, requiring intensive supports.
- Greater attention will be paid across all age groups to fostering self-advocacy and self-determination, as persons with intellectual disability seek greater control over their lives and fuller participation in all aspects of society.

Overall, we foresee significant improvement in the coming years in both the quality and the quantity of programs and services for persons with intellectual disability.

Chapter in Review

Defining Intellectual Disability: An Evolving Process (Learning Objective 6.1)

- Contemporary practice considers intellectual disability to be the result of interactions among the person, the environment, and those supports required to maximize the individual's performance in particular settings or environments.

Assessing Intellectual Ability and Adaptive Behavior (Learning Objective 6.2)

- Intelligence is a theoretical construct whose existence can only be inferred on the basis of a person's performance on certain types of cognitive tests that represent only a sample of the person's intellectual skills and abilities.

Classification of Individuals With Intellectual Disability (Learning Objective 6.3)

- Some models group persons with intellectual disability according to the etiology or cause of the disability; others label persons according to the severity of their cognitive impairment, such as mildly or severely intellectually disabled.
- Educators sometimes identify students with intellectual disability as educable mentally retarded (EMR) or trainable mentally retarded (TMR), terms now considered pejorative.
- The 2002 AAIDD definition classifies individuals with intellectual disability on the basis of the extent or levels of support they require to function effectively across adaptive skill areas in various natural settings, such as home, school, or job.
- Currently, approximately 7 percent of all students with disabilities, or about 1 percent of the school-age population, are recognized as being intellectually disabled.
- The vast majority of persons with intellectual disability have an IQ between 50 and 70–75.

Etiology of Intellectual Disability (Learning Objective 6.4)

- One way of categorizing etiological factors is on the basis of time of onset: before birth (prenatal), around the time of birth (perinatal), or after birth (postnatal).

Characteristics of Individuals With Intellectual Disability (Learning Objective 6.5)

- Common behaviors of persons with intellectual disability include attention deficits, or difficulty focusing and attending to relevant stimuli, and memory problems.
- Past experiences with failure frequently lead individuals with intellectual disability to doubt their own abilities and thus exhibit an external locus of control.
- Recurring episodes of failure also give rise to learned helplessness. These accumulated instances of failure frequently result in a loss of confidence and trust in one's own problem-solving abilities and a reliance on others for direction and guidance. This behavior is identified as outer-directedness.
- Individuals with intellectual impairments also often exhibit poor interpersonal skills and socially inappropriate or immature behaviors.

Educational Considerations (Learning Objective 6.6)

- Students with intellectual disability are more than three times as likely as other children with disabilities to be educated in a self-contained classroom.
- Many students with intellectual disability are exposed to a functional curriculum, whose goal is to equip these children with the skills they require for successful daily living both now and in the future.
- Best practice dictates that instruction occurs as much as possible in natural settings rather than simulated environments. This instructional concept is known as community-based instruction.
- Task analysis is frequently used with persons with intellectual disability.
- Cooperative learning is another instructional intervention that educators often employ. This strategy is especially useful when teaching pupils with intellectual disability in inclusive or integrated classrooms.
- Scaffolding, which is a cognitive approach to instruction, is a teacher-directed strategy in which various forms of support are provided to students as they engage in learning a new task or skill.

Technology and Individuals With Intellectual Disability (Learning Objective 6.7)

- Individuals with intellectual disability are increasingly using various formats of assistive technology in their daily lives.

Young Children With Intellectual Disability (Learning Objective 6.8)

- The goal of early intervention is to positively impact the overall development of a youngster with intellectual disability.
- Young children may be identified as environmentally or biologically at risk or exhibit an established risk.

Adults With Intellectual Disability (Learning Objective 6.9)

- The principle of normalization currently guides the delivery of services to individuals with intellectual disability. This notion suggests that persons with intellectual disability should have a lifestyle that is as culturally normative as possible.
- The principle of normalization has also given rise to the belief that individuals who are intellectually disabled should have a right to make their own choices and decisions about various aspects of their lives. This decision-making capacity is often referred to as self-determination.

Study Questions

1. How has the definition of intellectual disability changed over the past several decades?
2. Identify the three key elements of the 1992 AAIDD definition of intellectual disability. How are they conceptually interrelated?
3. Why is the assessment of intelligence such a controversial issue?
4. What is adaptive behavior, and how is it assessed?
5. List four different strategies for classifying individuals with intellectual disability.
6. How have society's view and understanding of persons who are intellectually disabled changed over the centuries?
7. What factors have contributed to the gradual reduction in the number of individuals classified as intellectually disabled?
8. Intellectual disability is often the result of various etiological factors. List seven possible causes of intellectual disability. Give an example of each.
9. How do learned helplessness, outer-directedness, and generalizing affect learning in students with intellectual disability?
10. Define the term *functional academics*. How are functional academics related to the concept of community-based instruction?
11. What is cooperative learning, and why is it a popular instructional technique?
12. List and describe the necessary steps for effectively using scaffolding with students with intellectual disability.
13. How can assistive technology benefit individuals with intellectual disability?
14. How has family-centered early intervention influenced programming activities for young children with intellectual disability?
15. Distinguish between a sheltered workshop for adults with intellectual disability and the contemporary practice of supported competitive employment.

Key Terms

standard deviation (SD), 151
adaptive behavior, 151
educable mentally retarded (EMR), 157
trainable mentally retarded (TMR), 157
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Learning Activities

1. Make arrangements to visit classrooms serving students with intellectual disability. What differences did you observe between elementary and secondary programs? Did the instructional program differ for students with severe or profound cognitive impairments in comparison to pupils with mild or moderate intellectual disability? What pedagogical techniques or teaching strategies did the teachers use? How did the other children interact with and relate to their classmates with intellectual disability? Was a particular curriculum incorporated? What was your overall impression of the program; what specific features stood out?
2. Visit several businesses in your community that employ individuals with intellectual disability. Interview the employer or supervisor. Find out how successful these individuals have been. What type of training do workers with intellectual disability require? How have customers and/or coworkers accepted these individuals? Why did the company hire people with an intellectual disability (financial reasons, corporate policy, public relations)? Are they good employees? Have the workers with intellectual disability posed any special challenges or problems for the employer?
3. Visit various residential facilities in your area that serve individuals with intellectual disability. Interview the caregivers. Discover what the daily routine is like for individuals with intellectual disability. Do the various facilities allow for different degrees of independence and decision making on the part of the residents? What is your opinion of the quality of life of these individuals? How has the community accepted its neighbors with intellectual disability? What supports and services are made available to the residents? Do the individuals with intellectual disability participate in the life of the community—attend special events and festivities; utilize community recreational facilities such as parks, museums, or the zoo; or make purchases in local shops?
4. Involve yourself with various community agencies and organizations that focus on individuals with intellectual disability. Attend a meeting of The Arc or a parent support group. Volunteer to work at Special Olympics, become a Best Buddy, or assist in programs offering respite care to parents of children with intellectual disability.
5. Prepare a multimedia presentation for your class on an aspect of intellectual disability that personally interests you. Here are some possible topics:
    - Assessment of intelligence
    - Assistive technology
    - Causes and prevention of intellectual disability
    - Early intervention
    - Group homes
    - Overrepresentation of children of color in classes for individuals with intellectual disability
    - Prenatal diagnostic screening
    - Supported competitive employment

Reflecting on Standards The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of

the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Learner Development and Individual Learning Differences (CEC Initial Preparation Standard 1.2)

Reflect on an individual with intellectual disability whom you have known. How has that individual made an impact on his or her family, friends, teachers, and/or community? What struggles did that individual have as a result of his or her differences? What did you learn from this person about individuals with disabilities?

Focus on Instructional Planning and Strategies (CEC Initial Preparation Standard 5.1)

Reflect on what you have learned in this chapter about students with intellectual disability. If you were to have a student with Down syndrome in your class, how would you need to modify your teaching to integrate affective, social, and life skills within your day-to-day curriculum?

Organizations Concerned With Intellectual Disability

American Association on Intellectual and Developmental Disabilities

http://aaidd.org

The Arc (formerly the Association for Retarded Citizens of the United States)

www.thearc.org

Division on Autism and Developmental Disabilities, Council for Exceptional Children

www.daddcec.org

National Down Syndrome Congress

www.ndsccenter.org

National Down Syndrome Society

www.ndss.org

Student Study Site

Sharpen your skills with SAGE edge at **edge.sagepub.com/gargiulo7e**. SAGE edge for students provides a personalized approach to help you accomplish your coursework goals in an easy-to-use learning environment.

7 Individuals With Learning Disabilities

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Learning Objectives

After reading Chapter 7, you should be able to:

7.1 **Summarize** the key components of the IDEA definition of learning disabilities.
7.2 **Identify** possible causes of learning disabilities.
7.3 **List** representative learning and social/emotional characteristics of individuals with learning disabilities.
7.4 **Explain** the various procedures used to identify a learning disability.
7.5 **Describe** the following instructional approaches: cognitive training, direct instruction, and learning strategies.
7.6 **Discuss** how assistive technology may be utilized by students with a learning disability.
7.7 **Summarize** educational services for individuals with a learning disability across the life span.

Coming Full Circle: Asking "What?"

Looking back on my youth always makes me chuckle. I lived in my own little world, doing my own thing with no sense as to what was actually happening around me. The question I probably asked the most was "What?" When I was in the fourth grade, my parents noticed a big slip in my grades, my inability to be attentive to what they were saying, and zero filters between my thoughts and what actually came out of my mouth, in addition to bad reports from my general education teacher. They were concerned and requested that I be assessed for learning disabilities. The results from a pediatric neurologist were fairly much in line with what they were observing: dyslexia paired with attention deficit hyperactivity disorder (ADHD).

In the 1980s, these terms all seemed relatively new to the education world and my parents as well. They have since told me how helpless they felt because they did not know what to do for me as far as supports and advocacy within school, but they did everything they could. I just kept going on in my own little world. However, as I got older, I realized I needed to join the actual world. I knew I was struggling, which made little sense to me because my parents kept telling me how smart I was. My confidence was shot because I never really knew what was going on, which led to academic and social repercussions. Throughout the rest of my youth, I spent two hours a day in a resource room, a place that I hated and was ashamed of going to. My question of "What?" had been silenced.

I attempted college right after high school. My parents came of age in the 1970s, when the idea was that if you worked hard and got your college degree, you were set for life. If you did not, you were a failure and would be a bum. I was so embarrassed about my learning disabilities that I did not seek out supports at school and I became so overwhelmed that I shut down. After a couple of unsuccessful years away at college, my

parents thought it best if I came home, and rightfully so. I attempted some courses at the local community college, but with no supports or tools to help, I again shut down—but at a much cheaper rate per credit hour! None of this helped my self-worth or helped me to feel confident that I would ever be a successful adult.

With the internet came blogs and resources about dyslexia and other learning difficulties. Every time I read something, I would think, "Oh yeah! That is so me!" I would even email stuff to my parents, and it was like a light bulb went on for all of us. I do have the intelligence; I just needed to figure out how to unlock it. I also became an advocate for myself. When I miss something in a conversation, I now immediately ask the person to repeat it or explain it again. I flat-out say, "I am so sorry. I completely just tuned out, which I know is rude, but could you please repeat what you just said?"

I eventually went back to college. Since I now knew about dyslexia and ADHD, I was much more successful. When I get overwhelmed, I know it's happening, and I stop it before I shut down. I have developed many coping mechanisms to be successful; yet, my learning disability still rears its ugly head. I explain to people that this is something that I will never outgrow; this is just how my mind works! Due to my poor experiences throughout elementary school and life in general, when I went back to college, as an older adult, I knew I had to help the "me" from my past in some way.

I am now a resource room teacher working with individuals who have learning differences. My personal goal for each of my students is for them to learn to advocate for themselves and be confident in their successes, and to make my classroom a sanctuary of support and encouragement. I tell my pupils about my own disabilities and past difficulties. I also model asking "What?" to them and sharing other coping mechanisms that I developed. My hope is that my students know how truly amazing they are; they just have to figure out the key that will unlock things for them like I did.

—Marie Karnes

Persons with learning disabilities are a very heterogeneous group. We will learn about children and adults who typically have normal intelligence but, for some reason, fail to learn as easily and efficiently as their classmates and peers. The idea that some individuals might possess a hidden or invisible disability is of relatively recent origin. The notion of learning disabilities is only about six decades old, but it has quickly grown and today represents the largest category of children and youth enrolled in special education.

The study of learning disabilities involves professionals from many different disciplines. Our knowledge base about this perplexing field has been greatly enriched by the contributions of investigators and practitioners from psychology, medicine, speech and language, and education, as well as

other disciplines. Despite this solid multidisciplinary foundation, individuals with learning disabilities are often an enigma to their parents, teachers, and researchers, and the field itself has generated significant controversy, confusion, and debate.

In reality, most individuals have imperfections and, to some degree, experience difficulty in learning, but in some instances, these problems are more pronounced than in others. For large numbers of people, these learning difficulties are chronic and will persist throughout life. It would be wrong to assume, however, that these individuals are incapable of accomplishments and a life of quality. Some of the most distinguished individuals and brightest minds the world has ever known had extreme difficulty in learning and could easily be considered learning disabled. These eminent people include Leonardo da Vinci, Auguste Rodin, Albert Einstein, Thomas Edison, Woodrow Wilson, Winston Churchill, and Ernest Hemingway. Other noted personalities include Walt Disney, George Patton, Nelson Rockefeller, Tom Cruise, Charles Schwab, Henry Winkler, and Bill Gates (Lerner & Johns, 2015; Smith, Polloway, Taber-Doughty, Patton, & Dowdy, 2016). By all accounts, the preceding individuals are very successful persons, but they are exceptions. The vast majority of children and adults with learning disabilities will be frequently misunderstood and experience ongoing challenges and frustrations in their daily lives.

In this chapter, we will explore several issues and attempt to answer a number of questions related to learning disabilities. What is a learning disability? How many individuals are thought to be learning disabled? Can we cure it? What instructional strategies work best for students who are learning disabled? How do professionals determine if someone has a learning disability? Of course, there are many other questions about this puzzling field of study, and some for which we do not have complete answers. We begin our exploration of learning disabilities by examining various definitions.

Defining Learning Disabilities

Students with learning disabilities have always been in our classrooms, but professionals have often failed to identify these pupils and recognize their special needs. These children have been known by a variety of confusing and sometimes controversial labels, including *neurologically impaired, perceptually disordered*, *dyslexic*, *slow learner, remedial reader*, and *hyperactive*. Almost fifty years ago, Cruickshank (1972) published a list of some forty terms used to describe students known today as learning disabled. Deiner's (1993) more recent analysis found more than ninety terms used in the professional literature to characterize individuals with learning disabilities. It is easy to see why controversy and confusion surround this population of learners. Part of the problem is the many different disciplines involved in serving these students. Based on their professional training, physicians, speech–language pathologists, educators, and psychologists each describe persons with learning disabilities in their own unique way. Over the years, however, the various terms have been consolidated into the concept now known as learning disabilities. Today, this term enjoys wide acceptance among educators and the general public.

A learning disability is an umbrella concept covering a wide range of difficulties.

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The term *learning disabilities* was initially used by Samuel Kirk in 1963 at a meeting of parents and professionals concerned about children with various learning difficulties. His proposed label was enthusiastically received and helped to unite the participants into an organization known as the Association for Children with Learning Disabilities, the forerunner of today's Learning Disabilities Association of America. Although the term was coined in 1963, Kirk had defined the concept a year earlier. His definition of a **learning disability** was

learning disability A disability in which there is a discrepancy between a person's ability and academic achievement; individual possesses average intelligence.

> a retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, writing, arithmetic, or other school subject resulting from a psychological handicap caused by a possible cerebral dysfunction and/or emotional or behavioral disturbances. It is not the result of mental retardation [intellectual disability], sensory deprivation, or cultural and instructional factors. (Kirk, 1962, p. 263)

As you will see, elements of this definition, which is an umbrella concept encompassing a multitude of educational "sins," appear in later definitions of learning disabilities, including subaverage academic performance, processing disorders, and the exclusion of certain etiological possibilities.

Federal Definition of Learning Disabilities

After the Education for All Handicapped Children Act was enacted in 1975, the U.S. Office of Education spent two years developing the accompanying rules and regulations for identifying and defining individuals with learning disabilities. The following official federal definition of learning disabilities was published in the *Federal Register* in December 1977:

> "Specific learning disability" means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning disabilities which are primarily the result of visual, hearing, or motor handicaps, or mental retardation, or emotional disturbance, or of environmental, cultural, or economic disadvantage. (U.S. Office of Education, 1977, p. 65083)

This definition was retained in the Individuals with Disabilities Education Act (PL 101–476), commonly called IDEA, and is incorporated, with a few word changes, in both the 1997 and 2004 reauthorizations of IDEA (PL 105–17, PL 108–446).

In the same issue of the *Federal Register*, the U.S. Office of Education issued the regulations and operational guidelines that were to be used by professionals as the criteria for identifying pupils suspected of being learning disabled. These regulations required that

> (a) A team may determine that a child has a specific learning disability if:

1. The child does not achieve commensurate with his or her age and ability levels in one or more of the areas listed in paragraph (a)(2) of this section, when provided with learning experiences appropriate for the child's age and ability levels; and
2. The team finds that a child has a severe discrepancy between achievement and intellectual ability in one or more of the following areas:
    i. Oral expression;
    ii. Listening comprehension;
    iii. Written expression;
    iv. Basic reading skill;
    v. Reading comprehension;
    vi. Mathematics calculation; or
    vii. Mathematics reasoning. (U.S. Office of Education, 1977, p. 65083)

This definition of learning disabilities and its accompanying regulations describe a syndrome rather than a particular student. Like other definitions, the federal interpretation is useful for classifying children but provides little information on how to instruct these pupils.

The IDEA definition contains two key elements worthy of additional attention. One central component is the idea of a **discrepancy** between the student's academic performance and his or her estimated or assumed ability or potential. This discrepancy would not be anticipated on the basis of the pupil's overall intellectual ability—generally average to above-average IQ. This discrepancy factor is considered by many professionals to be the *sine qua non* of the definition of learning disabilities. It explains how, for instance, a 10-year-old with above-average intelligence reads at a level a year or more below expectations for his chronological age. Generally speaking, in most instances, a discrepancy of two years or more below expected performance levels in one academic area is necessary for a designation of learning disabilities. Unfortunately, the federal government failed to stipulate what was meant by "a severe discrepancy." Early on, it attempted to quantify the notion of a discrepancy by offering several formulas, but its efforts only led to criticism and confusion (Council for

Learning Disabilities, 1986; Reynolds, 1992). Thus, the rules and regulations were published without a method for quantifying a severe discrepancy.

discrepancy In regard to learning disabilities, the difference between the student's actual academic performance and his or her estimated ability.

You may recall from Chapter 2 that IDEA 2004 removed this discrepancy provision. While PL 108–446 does not prohibit the use of a discrepancy approach for identifying pupils suspected of being learning disabled, it does give educators another way of discovering whether a student has a learning disability. School districts are now able, if they so choose, to use a process that determines if the pupil responds to empirically validated, scientifically based interventions—a procedure known as **response to intervention**, or **RTI**. We will have much more to say about this way of thinking later in this chapter.

response to intervention (RTI) A strategy used for determining whether a pupil has a learning disability. The student is exposed to increasing levels of validated instructional intervention; responsiveness to the instruction is assessed; a lack of adequate progress typically leads to a referral for possible special education services.

Table 7.1 Common Components of Definitions of Learning Disabilities

Table 7.1 Common Components of Definitions of Learning Disabilities

• Intellectual functioning within normal range
• Significant gap or discrepancy between a student's assumed potential and actual achievement
• Cognitive processing deficits
• Inference that learning disabilities are not primarily caused by other disabilities or extrinsic factors

• Difficulty in learning in one or more academic areas
• Presumption of central nervous system dysfunction
• Lifelong condition

The 1977 federal interpretation also specifies that a learning disability cannot be due primarily to sensory impairments, intellectual disability, emotional problems, or environmental, cultural, or economic disadvantage. This language has come to be known as the **exclusionary clause**. This concept has generated considerable concern in some circles because it seems to suggest that students with other impairments cannot be considered learning disabled as well. Mercer and Pullen (2009), however, believe that the word *primarily* suggests that a learning disability can coexist with other exceptionalities. We believe that what is important is that professionals recognize that a pupil is experiencing learning difficulties, regardless of their etiology, and thus is in need of some form of intervention.

exclusionary clause In regard to learning disabilities, the elimination of possible etiological factors to explain a pupil's difficulty in learning.

Association for Children With Learning Disabilities

The federal definition of learning disabilities has had its share of criticism and accompanying controversy. As a result, in 1986 the Association for Children with Learning Disabilities (now known as the Learning Disabilities Association of America) proposed a definition that incorporates several key elements not found in the IDEA definition. This substitute definition stresses the lifelong aspect of learning disabilities, addresses issues of socialization and self-esteem, eliminates the exclusionary language, and suggests that adaptive behaviors (daily living skills) may also be compromised by this disability. This group's definition is as follows:

> Specific Learning Disabilities is a chronic condition of presumed neurological origin which selectively interferes with the development, integration, and/or demonstration of verbal and/or nonverbal abilities. Specific Learning Disabilities exists as a distinct handicapping condition and varies in its manifestations and in degree of severity. Throughout life, the condition can affect self-esteem, education, vocation, socialization, and/or daily living activities. (Association for Children with Learning Disabilities, 1986, p. 15)

The Continuing Debate

After reading these two definitions, you may believe that the field of learning disabilities is in a continual state of confusion and raucous debate over what a learning disability is. You may be partly correct. It is perhaps best to envision learning disabilities as a family or syndrome of disabilities affecting a wide range of academic and/or behavioral performance. The key elements of these definitions are summarized in Table 7.1.

A Brief History of the Field

Learning disabilities is an evolving and ever-changing field. Over the years, it has been influenced and significantly shaped by eminent individuals, various movements, governmental policies, research findings, and theoretical debates and has benefited from the activities of various advocacy/interest groups. The collective outcome of these sometimes competing efforts has been the present-day concept of learning disabilities.

The origins of the field of learning disabilities are international, multicultural, and multidisciplinary (Hallahan, Kauffman, & Lloyd, 1999). In fact, according to Hallahan et al. (1999), over the past century, several different groups and professions have been involved, to varying degrees, in influencing the growth of the field. These influences include medicine, law, education, psychology, and advocacy groups, among others.

Lerner and Johns (2015) divide the development of the field into three distinct historical periods spanning almost 200 years. These phases, illustrated in Figure 7.1, are discussed in the following sections.

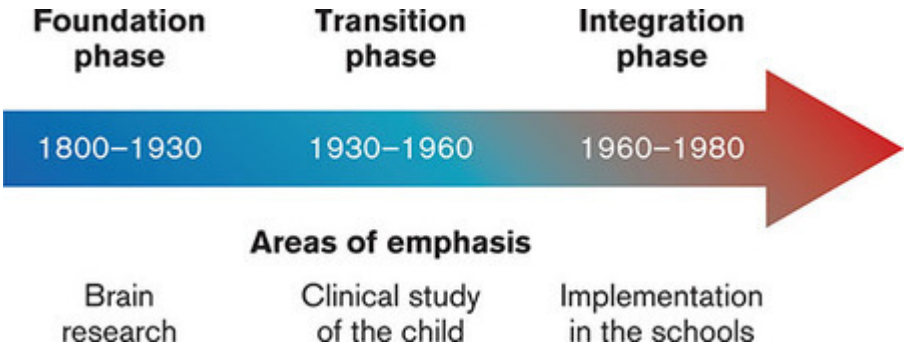
Foundation Phase

Although the modern-day concept of learning disabilities traces its origin to an address given by Samuel Kirk in 1963, the roots of this concept lie in the studies of brain functions conducted in the nineteenth and early twentieth centuries. Neurologists and other physicians of this era were interested in detecting which areas of the brain control specific activities such as speech or reading. By investigating adults with brain damage, these early pioneers were able to identify regions of the brain that appeared to be associated with particular cognitive impairments such as aphasia (inability to speak). James Hinshelwood, for example, was a Scottish medical researcher who was intrigued by a young boy's inability to learn to read. Despite apparently normal intelligence and vision, this child exhibited a severe reading disability that Hinshelwood called "word blindness." He attributed this problem to a defect in a specific area of the boy's brain.

These pioneering efforts paved the way for later scientists such as Kurt Goldstein, a physician who studied soldiers suffering from traumatic brain injuries acquired during World War I. He noticed that many of these young men exhibited perceptual impairments; they were highly distractible, unable to attend to relevant stimuli, and overly meticulous. He hypothesized that these behavioral and perceptual impairments were the consequence of damage to the brain. Goldstein's theorizing was later expanded on by Alfred Strauss, a neuropsychiatrist, and his colleague Heinz Werner, a developmental psychologist. Both men fled Nazi Germany and joined the research staff at the Wayne County Training School in Michigan, where they studied children thought to have brain injury and intellectual disability. Interestingly, they observed that these students exhibited characteristics similar to those identified by Goldstein, although they had not suffered any obvious head injuries. Werner and Strauss speculated that the pupils' intellectual disability could be attributed to brain damage resulting from nongenetic factors. They developed a list of behavioral characteristics that distinguished between individuals with and without brain injury and

suggested instructional tactics that could benefit students with learning disabilities.

Figure 7.1 Phases in the Development of the Field of Learning Disabilities



Source: Adapted from J. Lerner and B. Johns, *Learning Disabilities and Related Disabilities*, 13th ed. (Stamford, CT: Cengage Learning, 2015).

Transition Phase

Beginning in the 1930s, teachers, reading specialists, psychologists, and others began to apply the scientific research evidence to children with learning problems. During this period, various individuals from different professional backgrounds played key roles in developing assessment instruments and remediation strategies designed to ameliorate academic difficulties (Lerner, 2003). Among the important theorists and contributions of this period are the following:

- Samuel Orton, a specialist in neurology, hypothesized that language disorders in children were due to the absence of cerebral dominance. He also devoted considerable energy to working with pupils with severe reading disorders, whom he called dyslexic. He speculated that their reading difficulties were due to neurological problems. The Orton Dyslexia Society, now the International Dyslexia Association, was named in honor of his contributions in this area.
- Grace Fernald, an educator who worked at the laboratory school at the University of California, Los Angeles, established a clinic for children who were experiencing significant learning difficulties despite their normal intellect. Over the years, she perfected various remedial reading and spelling programs. One of her tactics was a visual-auditory-kinesthetic-tactile (VAKT) approach to learning. This technique is the foundation of today's multisensory approach to instruction.
- Newell Kephart, a colleague of Strauss at the Wayne County Training School, pioneered a perceptual-motor development theory of learning. He advocated movement and physical exercises, among other corrective activities, as a means of remediating learning problems, which he attributed to deficiencies in perceptual-motor integration.
- Marianne Frostig was another early worker in the field of learning disabilities. She believed that a youngster's academic difficulties, especially poor reading, were a consequence of poorly developed visual perceptual skills. Assessment and remediation efforts, therefore,

centered on specific aspects of visual perception. Frostig constructed her Developmental Test of Visual Perception as a means of pinpointing areas of weakness. Deficits were remediated by means of specially prepared exercises in hopes of improving visual perceptual abilities and thus the student's performance in reading. Her approach, like Kephart's, remained popular for many years but eventually fell out of favor among professionals for lack of empirical evidence documenting its effectiveness.

Integration Phase

In the latter part of the twentieth century, learning disabilities became an established disability area in schools across the United States (Lerner & Johns, 2015). As mentioned earlier, it was Samuel Kirk who initially popularized the term *learning disabilities.* This new term was welcomed by parents whose children had previously been identified as neurologically impaired, perceptually handicapped, brain damaged, and other pejorative labels. When schools elected to serve these students, many of whom were experiencing significant academic difficulties, they were often incorrectly placed in classes for pupils with intellectual disability or, in some instances, in settings for children with emotional problems; others received services from remedial reading specialists. Some pupils were denied help because school authorities were unable to classify them using the then current disabilities categories necessary for placement in a special education program.

The integration era witnessed the enactment of PL 91–230, the Specific Learning Disabilities Act of 1969, soon followed by the landmark “Bill of Rights” for children with disabilities, PL 94–142, now referred to as IDEA. Other milestones included the establishment of the Association for Children with Learning Disabilities in 1964, followed four years later by the birth of the Division for Children with Learning Disabilities (DCLD) as part of the Council for Exceptional Children (CEC). In 1982, a group of DCLD members withdrew from the CEC over policy issues and created an independent association also concerned about individuals with learning disabilities, the Council for Learning Disabilities. Also in 1982, other former DCLD members began a new division under the auspices of CEC, the Division for Learning Disabilities.

Twenty-First-Century Issues

For the past few decades, the field of learning disabilities has been impacted by several, and sometimes controversial, forces. Some special educators view this as a period of turbulence (Hallahan & Mercer, 2002). Mercer and Pullen (2009) believe that the field will be buffeted by a variety of social, political, economic, and professional forces. The question is “How will the field respond to these challenges?” Some of the contemporary challenges or issues identified by Lerner and Johns (2015) include concerns about full inclusion, how best to serve culturally and linguistically diverse learners, and the impact of assistive technology, along with issues of high-stakes assessment, RTI, universal design for learning (UDL), and several other matters. Many of these topics will be addressed elsewhere in this chapter.

Prevalence of Learning Disabilities

Recent statistics compiled by the federal government suggest that approximately 2.33 million pupils ages 6 to 21 are identified as learning disabled (U.S. Department of Education, 2018). Thus, learning disabilities make up by far the largest category of individuals with a disability, accounting for almost four out of every ten students (38.6%) receiving a special education in the 2016–2017 school year. This figure represents about 3.5 percent of the school-age population.

Over the past few years, there has been a gradual, but steady, decrease in the number of students identified as learning disabled. Possible reasons for this decrease include pupils being identified in other disability categories such as attention deficit hyperactivity disorder (ADHD); improvements in the quality of instruction in the general education classroom; better identification procedures; earlier screenings; and the expansion of early childhood education programs (Cortiella & Horowitz, 2014; Lerner & Johns, 2015).

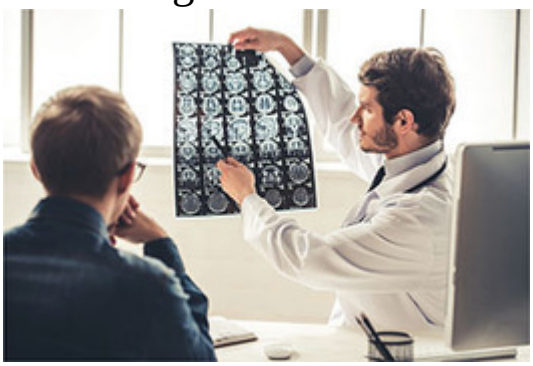
The number of pupils identified as learning disabled varies by both gender and age. Boys are four times more likely to be identified as learning disabled than girls; two thirds of students with a learning disability are male (Cortiella & Horowitz, 2014; Lerner & Johns, 2015). Among school-age children, we find a steady increase in the number of pupils recognized as learning disabled between 6 and 9 years of age. The overwhelming majority of students, however, are in the age range 9–14, with a decreasing trend among older adolescents (Lerner & Johns, 2015).

Finally, the U.S. Department of Education (2018) reports that approximately 8,400 young children are thought to have a learning disability. This number represents 1.1 percent of all preschoolers with a disability.

Etiology of Learning Disabilities

Despite intense research activity over the years, pinpointing the precise cause or causes of learning disabilities has remained an elusive goal. Many of the proposed causal factors remain largely speculative. In the vast majority of instances, the cause of a person's learning disability remains unknown. Just as there are many different types of learning disabilities, there appear to be multiple etiological possibilities. We should point out that the cause of an individual's learning difficulties is often of little educational relevance. In other words, knowing why a particular pupil exhibits a learning disability does not necessarily translate into effective instructional strategies and practices. Nonetheless, investigators posit four basic categories for explaining the etiology of learning disabilities: acquired trauma, genetic/hereditary influences, biochemical abnormalities, and environmental possibilities (Mercer & Pullen, 2009).

Neurological dysfunction is suspected as a cause of some learning disabilities.



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Acquired Trauma

The medical literature uses the term *acquired trauma* when describing injury or damage to the central nervous system (CNS) that originates outside the person and results in learning disorders. Depending on when the damage occurs, the trauma is identified as prenatal (before birth), perinatal (during birth), or postnatal (after birth). These traumas, according to Mercer and Pullen (2009), have been linked to learning problems in children.

One example of an acquired trauma that may manifest itself pre-, peri-, or postnatally is brain injury, or, in contemporary terms, brain dysfunction. Historically speaking, professionals have long presumed CNS dysfunction as a probable cause of learning disabilities (Hallahan & Mercer, 2002; Rourke, 2005). Advances in neuroimaging techniques such as magnetic resonance imaging (MRI), functional magnetic resonance imaging (fMRI), and positron emission tomography (PET), along with other computerized neurological measures, have now allowed researchers to establish the importance of neurological dysfunction as a possible cause of learning disabilities. Neuroimaging research suggests anatomical (structural) and functional differences in the brains of individuals with and without a learning disability (Ashkenazi, Black, Abrams, Hoeft, & Menon, 2013; Dehaene, 2009; Gabrieli, 2009; Lerner & Johns, 2015; Stasi & Tall, 2010).

CNS dysfunction is certainly one type of acquired trauma, but a number of other factors have also been implicated as possible causes of learning disabilities:

Prenatal Causes

- Maternal use of illicit drugs
- Smoking
- Maternal use of alcohol

Perinatal Causes

- Anoxia
- Prematurity/low birth weight
- Prolonged and difficult delivery
- Trauma caused by medical instruments such as forceps

Postnatal Causes

- Concussions
- Head injury resulting from falls or accidents
- High fever
- Meningitis/encephalitis
- Strokes (Mercer & Pullen, 2009)

Genetic/Hereditary Influences

Do learning disabilities “run” in families? Researchers investigating this question believe that some learning problems are indeed inherited; however, no single gene is believed to cause learning disabilities. Over the years, a fairly strong link has been established between heredity and some types of learning disabilities (Galaburda, 2005; Isles & Humby, 2006; Pullen, Lane, Ashworth, & Lovelace, 2017; Shapiro, Church, & Lewis, 2007). Raskind (2001) notes, for instance, that reading and spelling deficits are substantially inherited. **Familiality studies**, which examine the tendency of certain conditions to occur in a single family, suggest that some reading difficulties and certain types of math disorders are family related (Church & Lewis, 2019). Familiality does not clearly prove heritability, however; learning problems may occur in certain families for environmental reasons, such as child-rearing practices.

familiality study A method for assessing the degree to which a particular characteristic is inherited; the tendency for certain conditions to occur in a single family.

Although it is difficult to control for the effect of environmental influences on learning, **heritability studies** enable investigators to more clearly answer the question “Are learning disabilities inherited?” In this investigative technique, scientists compare the school performance of monozygotic twins (identical twins, developing from the same egg with identical genetic characteristics) with that of dizygotic twins (fraternal twins, developing from two different eggs with different genetic makeup). The research evidence generally supports the hypothesis that certain types of learning problems, including reading and math disabilities, are more common among identical twins than fraternal twins (Cohen Kadosh & Walsh, 2007; Pullen et al., 2017; Shalev, 2004; Wadsworth & DeFries, 2005).

heritability study A method for assessing the degree to which a specific condition is inherited; a comparison of the prevalence of a characteristic in fraternal versus identical

twins.

Biochemical Abnormalities

In some youngsters, biochemical conditions are suspected of causing learning disabilities. Over the years, several different theories have enjoyed varying degrees of popularity among parents and professionals. In the mid-1970s, Feingold (1975, 1976) championed the view that allergic reactions to certain artificial colorings, flavorings, and additives contained in many food products contribute to children's learning problems and hyperactive behavior. He recommends that parents restrict the consumption of foods containing natural salicylates, including apples, oranges, and some types of berries; ban products containing artificial colors and flavors; and limit the intake of certain other products such as toothpaste and compounds containing aspirin. The scientific community, however, has found little support for Feingold's theory (Kavale & Forness, 1983).

Another popular theory of this era was megavitamin therapy, whose chief advocate was psychiatrist Allan Cott. Cott (1972) theorizes that learning disabilities can be caused by the inability of a person's blood to synthesize a normal amount of vitamins. In an effort to treat learning disabilities, large daily doses of certain vitamins are recommended to counteract the suspected vitamin deficiency. Again, scientific research (Arnold, Christopher, Huestis, & Smeltzer, 1978) has failed to substantiate the benefit of this treatment.

We suspect that, in some instances, an individual's biochemical makeup may affect his or her learning and behavior. The current research evidence, however, cannot definitively support this hypothesis.

Environmental Possibilities

Another school of thought attributes the etiology of learning disabilities to a host of environmental factors such as low socioeconomic status, malnutrition, lack of access to health care, environmental toxins, and other variables that may contribute to neurological dysfunction (Hallahan, Lloyd, Kauffman, Weiss, & Martinez, 2005). Although the IDEA definition and others specifically exclude these conditions as etiological possibilities, many educators believe that these risk factors indirectly contribute to the learning and behavioral difficulties of some pupils.

Another variable implicated as causing learning disabilities is the quality of instruction that students receive. Simply stated, some children are identified as learning disabled as a result of poor teaching. Engelmann (1977) estimates that the vast majority of students labeled as learning disabled "have been seriously mistaught. Learning disabilities are made, not born" (p. 47). Recently, during a visit to a foreign country, one of your authors was told by a veteran special educator of a slogan in her country that speaks directly to this issue: "There are no bad students, only poor teachers." Lyon et al. (2001) also contend that learning disabilities may result from poor teachers and inadequate or ineffective instruction. While implying that the quality of the learning environment contributes to learning disabilities, researchers also note that learning problems can often be remediated by exposure to individualized and high-quality evidence-based instructional practices.

Characteristics of Individuals With Learning Disabilities

There is probably no such entity as a “typical” person with learning disabilities; no two students possess the identical profile of strengths and weaknesses. The concept of learning disabilities covers an extremely wide range of characteristics. One pupil may have deficits in just one area while another exhibits deficits in several areas; yet both will be labeled as learning disabled. Some children will experience cognitive difficulties, others may have problems with motor skills, and still others may exhibit social deficits.

Over the years, parents, educators, and other professionals have identified a wide range of characteristics often associated with learning disabilities. A typical profile may include elements of the following learning and behavioral characteristics:

- Disorders of attention
- Hyperactivity
- Information-processing problems
- Lack of cognitive strategies needed for efficient learning
- Memory difficulties
- Oral language difficulties
- Poor gross and fine motor skills
- Psychological processing deficits
- Quantitative disabilities
- Reading disorders
- Social/emotional challenges
- Written language problems (Lerner & Johns, 2009; Mercer & Pullen, 2009)

Not all students with learning disabilities will exhibit these characteristics, and many pupils who demonstrate these same behaviors are quite

successful in the classroom. It is often the frequency, intensity, and duration of the behaviors that lead to problems in school and elsewhere.

In the past, professionals typically focused on the elementary school–age child with a learning disability; in recent years, however, the field has adopted a life span approach. We now realize that learning disabilities can be a lifelong problem. Also, learning disabilities present themselves in different ways depending on the age of the individual. A language disorder, for instance, may exhibit itself as delayed speech in a preschooler, as a reading problem in the elementary grades, and as a writing difficulty at the secondary level (Lerner & Johns, 2015).

Learning Characteristics

Most professionals agree that the primary characteristics of students with learning disabilities are deficits in academic performance. A learning disability does not exist without significant impairments in academic achievement. These deficits may involve several different categories of school performance.

Reading

Well over half of all students identified as learning disabled exhibit problems with reading (Lerner & Johns, 2015; Pullen et al., 2017). The difficulties experienced by these youngsters are as varied as the children themselves. Some pupils have trouble with reading comprehension; others evidence word recognition errors; still others lack word analysis skills or are deficient in oral reading. Deficits in reading are thought to be a primary reason for failure in school; they also contribute to a loss of self-esteem and self-confidence (Polloway, Patton, Serna, & Bailey-Joseph, 2018).

One term frequently heard when discussing reading problems is **dyslexia**. Simply stated, dyslexia is a type of reading disorder in which the student fails to recognize and comprehend written words—a severe impairment in the ability to read. It is generally thought that this problem results from difficulties with **phonological awareness**—a lack of understanding of the rules that govern the correspondence between specific sounds and certain letters that make up words (Lyon, Shaywitz, & Shaywitz, 2003; Simmons, Kame'enui, Coyne, Chard, & Hairrell, 2011). In other words, letter–sound recognition is impaired. (See the accompanying Insights feature.)

Reading difficulties are very common among students with learning disabilities.

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dyslexia A severe reading disability; difficulty in understanding the relationship between sounds and letters.

phonological awareness Possible explanation for the reading problems of some students with learning disabilities; difficulty in recognizing the correspondence between specific sounds and certain letters that make up words.

Phonemic awareness, or understanding that words are constructed of small units of sounds known as **phonemes**, is another important element of learning to read. Some pupils, for example, may experience reading problems because they are unable to decode the word *cat* into three distinct phonemes—/c/ /a/ /t/—while other students might experience difficulty isolating beginning, middle, and ending sounds. For example, "What is the first sound in the word *rabbit*?" (Simmons et al., 2011).

phonemic awareness The ability to recognize that words consist of different sounds or phonemes.

phoneme Smallest unit of sound found in spoken language.

Mathematics

Researchers estimate that about one out of every four pupils with learning disabilities receives assistance because of difficulties with mathematics

(Lerner & Johns, 2015). Students who experience this problem are unique; not all children exhibit the same deficiency or impairment. In some instances, pupils may have difficulty with computational skills, word problems, spatial relationships, or writing numbers and copying shapes. Other classmates may have problems with telling time, understanding fractions and decimals, or measuring. Problems that begin in elementary school generally continue through high school and may have debilitating consequences in adulthood.

Written Language

Many individuals with learning disabilities exhibit deficits in written language, including spelling, handwriting, and composition (Graham, Collins, & Rigby-Wills, 2017; Vaughn, Bos, & Schumm, 2018). Researchers (Jennings, Caldwell, & Lerner, 2014) speculate that a link exists between these areas of deficiency and a person's reading ability. The association between reading and writing impairments should not be too surprising, as both may arise from a lack of phonological awareness.

Poor penmanship may be due to the absence of the requisite fine motor skills needed for legible handwriting and/or a lack of understanding of spatial relationships (for example, up, down, bottom), which may contribute to difficulties with letter formation and spacing between words and sentences (see Figure 7.2 on page 206).

Children's writing changes as they mature. According to Hallahan et al. (1999), the focus of a youngster's writing "shifts from (1) the process of writing (handwriting and spelling) to (2) the written product (having written something) to (3) communication with readers (getting across one's message)" (p. 396). Early on, pupils focus on becoming competent in mastering the mechanical aspects of composition—spelling and handwriting; in later grades, they learn to organize and present their ideas in a lucid and logical fashion. Children who are learning disabled, however, lag behind their typical peers. Investigators have observed that individuals with learning disabilities use less complex sentence structure, incorporate

fewer ideas, produce poorly organized paragraphs, and write less complex stories (Hallahan et al., 2005).

Insights
Understanding Dyslexia: A Quick Look

What Is Dyslexia?

Dyslexia is a specific learning disability in reading. Students with this disability typically have difficulty reading accurately and fluently. Some children who are dyslexic may experience problems with reading comprehension, spelling, and writing. Considered a lifelong problem, dyslexia is believed by experts to affect between 5 and 10 percent of all pupils. Although dyslexia impacts learning, it is unrelated to intellectual ability.

Signs and Symptoms

Dyslexia affects each student differently, so symptoms vary from one child to another. A key indicator is difficulty decoding words—problems in matching letters to individual sounds and using this skill to read proficiently. The ability to recognize individual sounds in words is known as phonemic awareness, a skill crucial to success in both spelling and reading.

Some possible indicators of dyslexia include:

- Avoidance of reading, both orally and silently
- Difficulty recognizing rhyming words
- Elimination of small words when reading aloud
- Frequent spelling errors
- Lack of comprehension, requiring frequent rereading of sentences or paragraphs
- Lack of recognition of common sight words
- Omission of inflectional endings such as *-s*, *-ed*, *-ly*, and *-ing* when reading aloud
- Slow and painful reading
- Struggles with learning new words

Comorbidity

Students who are dyslexic often exhibit other learning issues. Some of these concerns include attention deficit hyperactivity disorder (ADHD); difficulties with executive functioning such as organization, flexible thinking, and working memory; and auditory and visual processing difficulties.

Etiology of Dyslexia

Researchers have yet to identify the precise cause of dyslexia, although genes and heredity are believed to play a role. Dyslexia often runs in families, with about 40 percent of siblings and upwards of one-half of parents of children with dyslexia exhibiting reading problems. Neuroimaging research suggests structural and functional differences in areas of the brain associated with reading in individuals with and without dyslexia.

Instructional Suggestions for Students with Dyslexia

Some hints that may prove beneficial in helping students with dyslexia find success in reading include:

- A quiet area for reading
- Books on tape
- Books with large print and extra spacing between lines
- Exposure to explicit, intensive, and systematic instruction
- Extra time to complete reading assignments
- Materials presented in small units
- The use of a laptop or other device for in-class assignments
- The use of multisensory teaching methods

Source: Adapted from *Understanding Dyslexia*. Retrieved March 22, 2019, from https://www.understood.org/en/learning-attention-issues/child-learning-disabilities/dyslexia/understanding-dyslexia#item3

Adapted from *Dyslexia*. Retrieved March 22, 2019, from https://ldaamerica.org/types-of-learning-disabilities/dyslexia/

Spelling is another problem area for students with learning disabilities. They may omit certain letters or add incorrect ones. Auditory memory and discrimination difficulties are thought to be part of the reason for their problem.

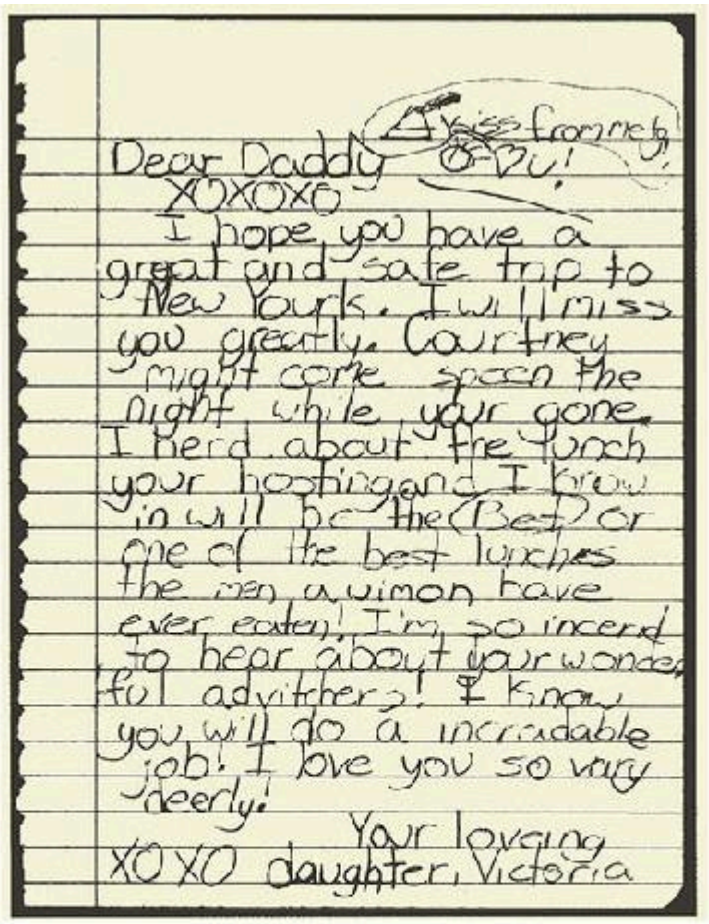
Spoken Language

Persons with learning disabilities frequently experience difficulties with oral expression—a problem that can affect both academic performance and social interactions. Problems with appropriate word choice, understanding complex sentence structures, and responding to questions are not uncommon. Specific mechanical deficits may involve syntax (rule systems that determine how words are organized into sentences), semantics (word meanings), and phonology (sound formation and blending of sounds to form words). One aspect of oral expression that is receiving increased

attention is **pragmatics**—the functional use of language in social situations. Researchers note that children with learning disabilities sometimes experience communication problems in social settings (Wiener & Timmermanis, 2012). Participating in conversations with friends can be especially troublesome for someone with a learning disability. The ebb and flow that is characteristic of conversations may elude him or her, and nonverbal language clues may also be overlooked. In short, many individuals with learning disabilities are not good conversationalists.

pragmatics A sociolinguistic system involving the use of communication skills in social contexts.

Figure 7.2 Writing Sample of a 10-Year-Old Girl


A kiss from me to you!
Dear Daddy
XOXOXO
I hope you have a great and safe trip to New York. I will miss you greatly. Courtney might come spend the night while your gone. I heard about the lunch your hosting and I know it will be the Best or one of the best lunches the men a women have ever eaten! I'm so incerd to hear about your wonderful advitchers! I know you will do a incredable job! I love you so very deerly!
Your loving
XOXO daughter, Victoria

Dear Daddy

A kiss from me to you!

XOXOXO

I hope you have a great and safe trip to New York. I will miss you greatly. Courtney might come spend the night while you are gone. I heard about the lunch you are hosting and I know it will be the best or one of the best lunches the men and women have ever eaten! I'm so interested to hear about your wonderful adventures! I know you will do an incredible job! I love you so very dearly.

XOXO

Your loving daughter, Victoria

Memory

It is well documented that children and adolescents with learning disabilities have significant difficulties remembering both academic and nonacademic information, such as doctor appointments, homework assignments, multiplication facts, directions, and telephone numbers. Teachers frequently comment that, with these students, it seems to be “in

one ear and out the other," which can be highly aggravating for teachers as well as parents.

Research evidence suggests that many students with learning disabilities have problems with **short-term memory** as well as working memory (Pullen et al., 2017; Swanson & Stomel, 2012; Swanson, Zheng, & Jerman, 2009; Wiguna, Noorhana, Kaligis, & Beiter, 2012). Short-term memory tasks typically involve the recall, in correct order, of either aurally or visually presented information (such as lists of digits or pictures) shortly after hearing or seeing the items several times. **Working memory** requires that an individual retain information while simultaneously engaging in another cognitive activity. Working memory is involved, for example, when we try to remember a person's address while also listening to directions on how to arrive there.

short-term memory The recall of information after a brief period of time.

working memory The ability to retain information while also engaging in another cognitive activity.

Students with learning disabilities, in contrast to their typical peers, apparently do not spontaneously use effective learning strategies (such as rehearsal or categorizing of items) as an aid in recall. Deficits in memory, particularly working memory, often translate into difficulties in the classroom. Success with reading and math seems to depend more on working memory than on short-term memory (Council for Exceptional Children, 2003). Working memory also appears to be crucial for word recognition and reading comprehension.

Metacognition

It is not unusual for persons with learning disabilities to exhibit deficits in **metacognition**—the ability to evaluate and monitor one's own performance. Students who are learning disabled often lack an awareness of their own thinking process. Metacognitive skills typically consist of several

key components: (1) a recognition of task requirements—that is, the strategies and resources needed to perform effectively; (2) implementation of the appropriate process; and (3) monitoring, evaluating, and adjusting one's performance to ensure successful task completion. Competency as a learner requires that students exhibit these metacognitive skills (Meltzer, Dunstan-Brewer, & Krishnan, 2018).

metacognition The ability to evaluate and monitor one's own performance.

The reading problems of some children with learning disabilities may be due to deficiencies in metacognition. Reading comprehension difficulties, for example, may be due to deficits in the following skills:

- **Clarifying the purpose(s) of reading**: Pupils do not adjust their reading styles to accommodate the difficulty of the text.
- **Focusing attention on important goals**: Youngsters with reading problems experience difficulty in selecting the main ideas of a paragraph.
- **Monitoring one's level of comprehension**: Inefficient readers do not recognize that they are failing to understand what they are reading.
- **Rereading and scanning ahead**: Children with learning disabilities do not go back and reread portions of previously read text, nor do they scan upcoming material as an aid to comprehension.
- **Consulting external sources**: Ineffective readers do not utilize external sources like dictionaries and encyclopedias. (Hallahan et al., 2005)

Fortunately, as you will learn later, metacognitive skills can be taught.

Many individuals with learning disabilities believe that no matter how hard they try, they will still fail.

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Attributions

What individuals believe about what contributes to their success or failure on a task is known as *attribution.* Many students with learning disabilities attribute success not to their own efforts but to situations or events beyond their control, such as luck. These pupils are identified as exhibiting **outer-directedness**.

> **outer-directedness** A condition characterized by a loss of confidence in one's own capabilities and a reliance on others for cues and guidance.

Chronic difficulties with academic assignments often lead children with learning disabilities to anticipate failure; success is seen as an unattainable goal no matter how hard they try. Youngsters who maintain this attitude frequently give up and will not even attempt to complete the task. Friend and Bursuck (2019) identify this outlook as **learned helplessness**. Loss of self-esteem and a lack of motivation are common consequences of this phenomenon.

> **learned helplessness** A lack of persistence at tasks that can be mastered; a tendency to expect failure.

Because of their propensity for academic failure, individuals with learning disabilities tend to be passive learners. They are not actively involved or

engaged in their own learning and fail to demonstrate initiative in the learning process. These pupils are often characterized as inactive or inefficient learners (Hallahan et al., 2005). Some students with learning disabilities simply do not “know how to go about the task of learning” (Lerner & Johns, 2015, p. 151). These attributions can be altered, however, by teaching effective learning strategies (Lenz & Deshler, 2004).

Social and Emotional Problems

Research suggests that some students with learning disabilities, in comparison to their typical peers, have lower self-esteem and a poor self-concept (Pullen et al., 2017; Wiener & Timmermanis, 2012) most likely due to frustration with their learning difficulties (Mercer & Pullen, 2009). Shapiro and his colleagues (2007) observe that “these individuals are less likely to take pride in their successes and more likely to be overcome by their failures” (p. 374).

Investigators are now beginning to realize that deficits in social skills are a common characteristic among many, but not all, individuals with learning disabilities (Mash & Wolfe, 2019; Wiener & Timmermanis, 2012). Many of these students are deficient in social cognition; they are inept at understanding and interpreting social cues and social situations, which can easily lead to impaired interpersonal relationships. The social/emotional difficulties of persons with learning disabilities may be the result of social imperceptiveness—a lack of skill in detecting subtle affective cues. Students with learning disabilities often experience rejection by typical peers and have difficulty making friends, possibly because they misinterpret the feelings and emotions of others (Lerner & Johns, 2015; Wiener & Timmermanis, 2012).

Attention Problems and Hyperactivity

Individuals who are learning disabled frequently experience difficulty attending to tasks, and some exhibit excess movement and activity, or hyperactive behavior. It is not unusual for educators to mention these characteristics when describing students with learning disabilities. Teachers note that some pupils have difficulty staying on task and completing assignments, following directions, or focusing their attention for a sustained period of time—they are easily distracted. In other instances, children are perceived to be overly active and fidgety, racing from one thing to another as if driven. Problems with inattention, distractibility, and hyperactivity can easily impair and impede an individual's successful performance in the classroom, at home, and in social situations.

The term usually heard when discussing this condition is **attention deficit hyperactivity disorder (ADHD)**, typical in the language of medical professionals and psychologists. This label is derived from the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2013). Although hyperactivity and attention disorders are fairly common among persons with learning disabilities, with estimates ranging from about 20 to 40 percent of children with learning disabilities displaying characteristics of ADHD (Horowitz, Rawe, & Whittaker, 2017; Lerner & Johns, 2015), the terms are *not* synonymous—not all students with learning disabilities have ADHD, and vice versa. The exact relationship between learning disabilities and ADHD is not fully understood, but scientists and researchers are now beginning to unravel this complex phenomenon.

attention deficit hyperactivity disorder (ADHD) A disorder characterized by symptoms of inattention, hyperactivity, and/or impulsivity. Frequently observed in individuals with learning disabilities.

Assessment of Learning Disabilities

Federal law dictates that individuals being considered for possible placement in a program for children with learning disabilities receive a multidisciplinary evaluation that is conducted by a team of professionals in a nondiscriminatory fashion. Recall that this evaluation process will only occur if the recommended prereferral strategies have proven ineffective. IDEA requires, among other regulations, that

- tests be administered by trained individuals;
- tests be reliable and valid and appropriate for the purpose for which they are being used;
- tests be neither racially nor culturally discriminatory;
- tests be administered in the student's native language or preferred means of communication; and
- no single measure be used as the basis for determining a pupil's eligibility.

Once the evaluation is completed, the team determines the student's eligibility for placement in a learning disabilities program in light of the state's definition of learning disabilities and federal guidelines.

Assessment Decisions

At the heart of assessing a student for possible placement in a program for individuals with learning disabilities is determining whether the pupil exhibits a severe discrepancy between assumed ability and actual educational achievement. This discrepancy is typically established by comparing a student's performance on a standardized achievement test with a measure of cognitive abilities or intelligence. Frequently used measures of intellectual performance (mentioned in Chapter 6) include the Wechsler Intelligence Scale for Children (5th ed.), the Stanford-Binet Intelligence Scales (5th ed.), and the more recently developed Kaufman Assessment Battery for Children (2nd ed., normative update [KABC-II NU]). A wide variety of achievement tests are available to educational diagnosticians. Comprehensive batteries designed to measure overall academic achievement include, for example, the well-known Iowa Tests of Basic Skills, the Stanford Achievement Test (10th ed.), the Woodcock-Johnson IV Tests of Achievement, and the Wechsler Individual Achievement Test (3rd ed.). Many other achievement tests assess a student's abilities in content areas such as math, reading, and language arts.

Several states use the concept of a severe discrepancy to identify individuals as learning disabled.

Unfortunately, there is no nationally agreed-upon mechanism for determining a discrepancy; different states use different formulas and even different tests in an effort to quantify the gap between potential and performance. As a result, a student identified as learning disabled in one state may be ineligible for services if the family relocates to another state.

Researchers, parents, and practitioners alike are now questioning the educational validity of identifying youngsters as learning disabled solely on the basis of a discrepancy formula and are calling for the use of alternative strategies such as relying on information from a comprehensive evaluation, including the professionals' clinical judgment and experience, in addition to

assessing discrepancies among various cognitive and academic skills (Lerner & Johns, 2015).

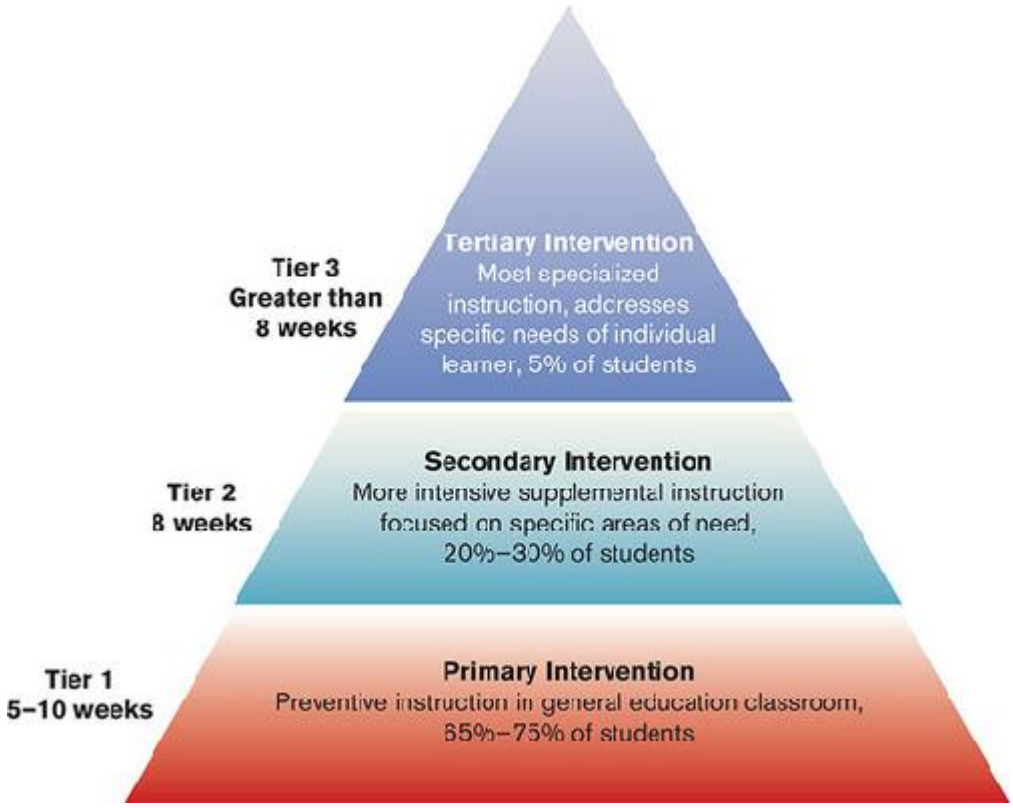
Response to Intervention

With the reauthorization of IDEA in 2004, some of the preceding concerns were addressed. States and local school districts now have the option of choosing between the achievement–ability discrepancy model and making eligibility decisions on the basis of how a pupil responds to scientific, research-based educational interventions. This strategy is commonly referred to as response to intervention (RTI). While offered as an alternative way of identifying students with a possible learning disability, many schools are now using RTI as a prereferral strategy because *all* pupils are initially screened and provided with scientifically validated instruction (Gargiulo & Metcalf, 2017).

There is no formal definition of RTI, nor is there one model or strategy that is widely accepted (Vaughn & Bos, 2015; Vaughn, Wanzek, & Denton, 2014). Generally speaking, RTI is a procedure whereby a pupil is exposed to increasingly intensive tiers or levels of instructional intervention with ongoing progress monitoring. The fidelity or integrity of RTI is predicated upon two crucial elements: (1) the use of evidence-based or scientifically validated instructional practices and (2) the frequent and systematic assessment of the individual's performance, known as **progress monitoring**. Essentially, RTI is an instructional and dynamic assessment process based on rigorous scientific research and is typically portrayed as a multitiered model of prevention generally consisting of three levels (Bjorn, Aro, Koponen, Fuchs, & Fuchs, 2016; Horowitz et al., 2017; Vaughn et al., 2014). One such conceptualization is illustrated in Figure 7.3. This configuration is thought to best serve the early intervention and identification aims of RTI (Fuchs, Fuchs, & Compton, 2012).

progress monitoring The frequent and systematic assessment of a pupil's academic progress.

Figure 7.3 A Response-to-Intervention Model



Note: Percentage of students participating at each level is approximate.

Duration of intervention is approximate.

Students may move between tiers as individual needs dictate.

All students initially receive research-based instruction in the general education classroom. If a particular pupil fails to demonstrate "responsiveness" after receiving increasingly individualized and intensive instruction, a learning disability is presumed to be present, and a referral for special education services with a more comprehensive evaluation is usually initiated. Using reading instruction as an example, Table 7.2 highlights the differences, according to one RTI model, among primary, secondary, and tertiary interventions.

The RTI model represents a significant conceptual shift in thinking from a "wait to fail" approach to one that emphasizes early identification, intervention, and possible prevention (Fuchs et al., 2012; Vaughn & Bos, 2015; Vaughn et al., 2018). This approach to determining whether a pupil has a learning disability eliminates ineffective or inadequate instruction as a possible reason for low achievement. It also provides significant opportunities for general and special educators to work collaboratively (Cohen & Spenciner, 2015; Lerner & Johns, 2015; Sileo, 2011).

Table 7.2 A Response-to-Intervention Model: Tiers of Instruction

Table 7.2 A Response-to-Intervention Model: Tiers of Instruction

	Tier 1 (Primary)	Tier 2 (Secondary)	Tier 3 (Tertiary)
Definition	Reading instruction and programs, including ongoing professional development and benchmark assessments (3 times per year)	Instructional intervention employed to supplement, enhance, and support Tier 1; takes place in small groups	Individualized reading instruction extended beyond the time allocated for Tier 1; groups of 1–3 students
Focus	All students	Students identified with reading difficulties who have not responded to Tier 1 efforts	Students with marked difficulties in reading or reading disabilities who have not

	Tier 1 (Primary)	Tier 2 (Secondary)	Tier 3 (Tertiary)
			responded adequately to Tier 1 and Tier 2 efforts
Program	Scientifically based reading instruction and curriculum emphasizing the critical elements	Specialized, scientifically based reading instruction and curriculum emphasizing the critical elements	Sustained, intensive, scientifically based reading instruction and curriculum highly responsive to students' needs
Instruction	Sufficient opportunities to practice throughout the school day	• Additional attention, focus, support • Additional opportunities to practice embedded throughout the day • Preteach, review skills; frequent opportunities to practice skills	Carefully designed and implemented, explicit, systematic instruction

	Tier 1 (Primary)	Tier 2 (Secondary)	Tier 3 (Tertiary)
Interventionist	General education teacher	Personnel determined by the school (classroom teacher, specialized reading teacher, other trained personnel)	Personnel determined by the school (e.g., specialized reading teacher, special education teacher)
Setting	General education classroom	Appropriate setting designated by the school	Appropriate setting designated by the school
Grouping	Flexible grouping	Homogeneous small-group instruction (e.g., 1:4, 1:5)	Homogeneous small-group instruction (1:2, 1:3)
Time	Minimum of 90 minutes per day	20–30 minutes per day in addition to Tier 1	50-minute sessions (or longer) per day depending upon appropriateness of Tier 1
Assessment	Benchmark assessments at beginning, middle, and	Progress monitoring twice a month on target skill to	Progress monitoring at least twice a month on target

	Tier 1 (Primary)	Tier 2 (Secondary)	Tier 3 (Tertiary)
	end of academic year	ensure adequate progress and learning	skill to ensure adequate progress and learning

Source: Adapted from S. Vaughn and G. Roberts, "Secondary Interventions in Reading," *Teaching Exceptional Children, 39*(5), 2007, p. 41. Copyright © 2007. Reprinted with permission by the Council for Exceptional Children.

While most of the early attention of RTI has focused on its application to reading, several benefits are recognized. Some of the advantages include a reduction in the number of inappropriate referrals for special education, including pupils from culturally and linguistically diverse backgrounds; interventions linked to ongoing assessment and learning outcomes; fewer students recognized as having a learning disability; and less stigma placed on the individual learner (Lerner & Johns, 2015).

Although support for RTI is growing in some educational circles, the research evidence is still somewhat limited. Some educators view RTI as a "promising practice" while acknowledging that several issues need to be addressed—for instance,

- its application to other content areas such as mathematics;
- how responsiveness to intervention is determined;
- a lack of fidelity in delivering high-quality intensive instruction in the general education classroom;
- what the most effective duration of intervention is; and
- how many tiers or levels of intervention are required before a student is identified as learning disabled (Burns et al., 2013; Fuchs et al., 2012; Fuchs & Vaughn, 2012; McLeskey & Waldron, 2011; O'Connor, Sanchez, & Kim, 2017; Pullen et al., 2017).

We suspect that these and other concerns will be successfully resolved in the coming years. It will be interesting to see how individual states and local school districts respond to the RTI option for identifying pupils

suspected of having a learning disability. Recent national surveys (Cortiella & Horowitz, 2014) suggest that RTI, in its various forms, is currently being used in a majority of schools, districts, and states as a means of identifying students with unique learning needs.

Assessment Strategies

Traditionally, standardized tests have played a major role in the evaluation of students thought to have a learning disability. These instruments are also known as **norm-referenced assessments** because an individual's performance is compared to that of a normative group of peers (for example, all sixth graders in their state or a national sample of sixth graders) who have taken the same test. Standardized assessment requires rigid adherence to directions for administering, scoring, and interpreting the results. Teachers and psychologists rely heavily on standardized tests when assessing for learning disabilities. Norm-referenced tests provide a great deal of statistical information, allowing professionals to *compare* a particular student's performance with that of other pupils in the normative group. **Criterion-referenced assessments**, on the other hand, *describe* a youngster's performance. Criterion-referenced tests measure a student's abilities against a predetermined criterion or mastery level. In other words, the child's performance is compared with a standard expectation (100% knowledge of multiplication facts), not with the performance of others. Criterion-referenced tests, also commonly called teacher-made tests, offer a means of educational accountability, in that a teacher can demonstrate that a student has learned specific skills. It is a bit more difficult to show improvement in terms of percentile rankings or even grade-level scores (Lerner & Johns, 2015).

norm-referenced assessment A standardized test on which a pupil's performance is compared to that of his or her peers.

criterion-referenced assessment An assessment procedure in which a student's performance is compared to a particular level of mastery.

Standardized assessment requires rigid adherence to directions for administering, scoring, and interpreting the results.

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Although standardized testing is a useful component of a nondiscriminatory evaluation and provides meaningful information for identification purposes, norm-referenced tests are weak in providing instructional direction. Teacher-made tests are perhaps better suited for guiding instruction. One of the chief benefits of criterion-referenced tests is that they can help in instructional planning and decision making and in monitoring progress toward educational goals. Individualized education programs (IEPs) are often constructed around data gleaned from various types of criterion-referenced tests.

Assessment strategies should always fit the question we are asking about a particular student. Professionals must also pay careful attention to the purpose of the assessment and how the data will be used (Aiken & Groth-Marnat, 2006).

Curriculum-Based Measurement

One frequently voiced concern about standardized testing is that the test items do not necessarily reflect or represent the content of the curriculum that a student has been exposed to. **Curriculum-based measurement (CBM)**, on the other hand, is a form of criterion-referenced assessment in which test items are based on objectives found in the local school curriculum. In this model, a pupil's performance, usually in the areas of math, spelling, and reading, is evaluated several times a week with test

items mirroring the daily instructional tasks. The student's performance is then charted or graphed so that his or her progress toward specific educational goals is easily recognized. The frequent and systematic sampling of a child's performance provides teachers with evidence of the effectiveness of their teaching tactics and may suggest the need for changes in instructional strategies. CBM is fairly common in special education and is often used with students with a learning disability because it reinforces the important link between assessment and instruction.

curriculum-based measurement (CBM) A formative assessment procedure for monitoring student progress in core academic subjects that reflect the local school curriculum.

Portfolio Assessment

Disillusionment with traditional testing has contributed, in some educational circles, to a movement toward alternative assessment procedures. One form of alternative assessment is **authentic assessment**, which is believed to paint a more accurate or genuine picture of what a pupil can and cannot accomplish in real-life situations such as in the classroom or at home. An example of an authentic procedure is **portfolio assessment**. A portfolio is simply a collection of samples of a student's best work gathered over a period of time. According to Paulson, Paulson, and Meyer (1991), "a portfolio is a purposeful collection of student work that exhibits the student's effort, progress, and achievements in one or more areas" (p. 60). Mercer and Pullen (2009) see portfolio assessment as an attempt to improve the evaluation process and enhance instructional decision making.

authentic assessment An evaluation of a student's ability by means of various work products, typically classroom assignments and other activities.

portfolio assessment A type of authentic assessment; samples of different work products gathered over time and across curriculum areas are evaluated.

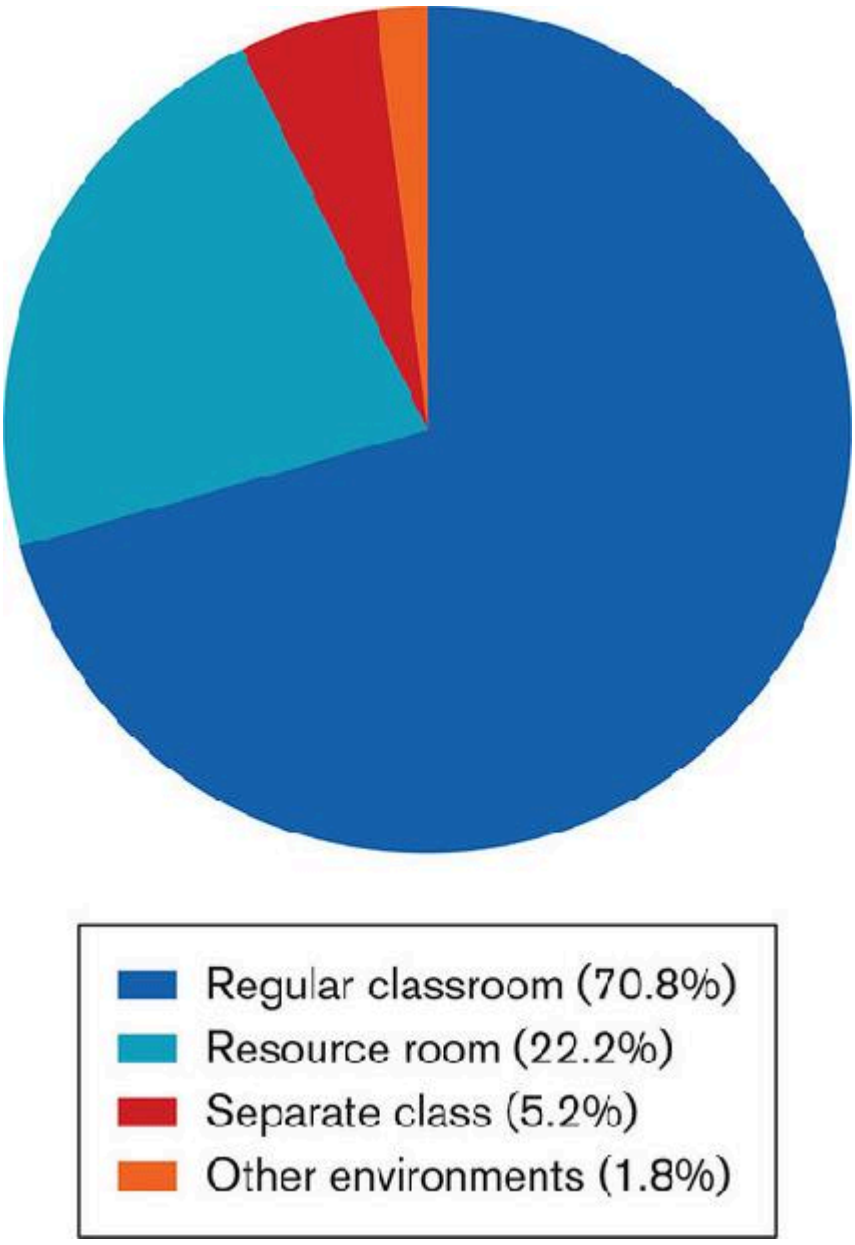
One of the critical issues in portfolio assessment is knowing what to include in the portfolio and how to evaluate the person's efforts. A portfolio should have a specific purpose; without direction, it can easily become a mere collection of products.

A wide variety of student-generated products can be included in a portfolio. The teacher must first consider the goals of the instructional program and then select samples to match its intent. Using goals from the child's IEP is one strategy the teacher may wish to employ in determining what to include (Lerner & Johns, 2015). Examples of the diverse work products that might be part of a portfolio include audio recordings of oral reading samples, summaries of science experiments, poems, art projects, book reports, excerpts from journals, weekly quizzes, and math worksheets. Because portfolios reflect student progress, Salend (1998) recommends that they be used during parent–teacher conferences.

Educational Considerations

As noted elsewhere, individuals with learning disabilities are an especially heterogeneous population whose disabilities range from mild to severe. These students require a diversity of educational interventions and teaching strategies designed to meet their unique academic, social, and behavioral needs.

Figure 7.4 Educational Placements of School-Age Students With Learning Disabilities



Note: Figure represents percentage of enrollment of students ages 6–21 with learning disabilities during the 2016–2017 school year. Other environments represent placement in a separate school, residential facility, homebound/hospital environment, correctional facilities, or parentally placed in private schools.

Information based on data from forty-nine states, the District of Columbia, Puerto Rico, Bureau of Indian Education schools, and outlying areas. Data for Wisconsin not included.

Source: U.S. Department of Education. (2018). *Fortieth annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2018.* Washington, DC: U.S. Government Printing Office.

Where Are Students With Learning Disabilities Educated?

The educational placement of children with special needs is currently one of the most controversial issues in the field of special education, and pupils with learning disabilities are not immune to this debate. Where students receive instruction can significantly affect their attitude, achievement, and social development (Mercer & Pullen, 2009).

From a historical perspective, the resource room has been one of the most common service delivery models for serving children with learning disabilities. Since the mid-1990s, however, there has been a subtle shift away from this option—most likely reflecting the trend toward more inclusive programs. Recent statistics indicate that the regular classroom is currently the most popular placement. During the 2016–2017 school year, more than two thirds of pupils (70.8%) with learning disabilities were receiving services in the general education classroom while approximately one in four students (22.2%) were assigned to a resource room (U.S. Department of Education, 2018). This means that over nine out of every ten individuals with learning disabilities spend some, most, or all of their school day in a regular classroom (see Figure 7.4).

The environment that is most appropriate for pupils with learning disabilities is the setting that is most enabling. Placement decisions must be individually determined based on the unique learning needs and characteristics of each student.

Instructional Approaches

There is no one “best” or “correct” way to teach individuals with learning disabilities. Individualization is the key to meeting the instructional needs of pupils with learning disabilities. Teachers often find that a wide variety of accommodations are necessary if the student is to experience success in the classroom. Some children will need additional time for testing or ask that a learning task be broken into smaller and more manageable segments; other pupils may require the privacy provided by a study carrel; some youngsters may need assistance in developing effective learning strategies; still others will benefit from additional drill and practice. What works for one student will not necessarily be appropriate for another pupil.

Strategies for Effective Teaching and Learning
Supporting Mathematics Problem Solving for Students With Learning Disabilities

Students with learning disabilities often struggle with mathematics, with problem solving being one particular area of difficulty. The following are evidence- or research-based interventions to support students with learning disabilities with problem solving at the elementary and secondary levels.

Elementary	Secondary
Cognitive and Metacognitive Strategies	
• Students approach problem solving using FAST DRAW: **F**ind the question **A**sk the parts of the problem needed **S**et up the problem **T**ie down the sign	• Students approach problem solving using seven cognitive phrases—Solve-It: Read Paraphrase Visualize Hypothesize

Elementary	Secondary
Discover the sign **R**ead the number problem **A**nswer the number problem **W**rite the answer (Cassel & Reid, 1996)	Estimate Compute Check (along with three meta-cognitive processes: say, ask, and check) (Montague, 2008)
Schema-Based Strategies	
• Students approach problem solving with the COMPs model: Organize the problem using a conceptual model Transform the model into a mathematical equation Solve and check the answer (Xin et al., 2011)	• Students approach problem solving using FOPS: **F**ind the problem **O**rganize the information with a diagram or visual schematic representation **P**lan how to solve the problem **S**olve the problem (Jitendra, George, Sood, & Price, 2010)
Concrete–Representational–Abstract (CRA) Strategies	
Students move across three phases to support problem solving: 1. Concrete phase: use concrete manipulatives to represent a problem 2. Representational phase: draw pictures to represent the problem 3. Abstract reasoning phase: use abstract reasoning to solve the problem (Mancl, Miller, & Kennedy, 2012)	

Source: J. Cassel and R. Reid, "Use of a self-regulated strategy intervention to improve word problem-solving skills of students with mild disabilities," *Journal of Behavioral Education, 6*, 1996, pp. 153–172.
A. Jitendra, M. George, S. Sood, and K. Price, "Schema-based instruction: Facilitating mathematical word problem solving for students with emotional and behavioral disorders," *Preventing School Failure, 54*, 2010, pp. 145–151.
D. Mancl, S. Miller, and M. Kennedy, "Using the concrete-representational-abstract sequence with integrated strategy instruction to teach subtraction with regrouping to students with learning disabilities," *Learning Disabilities Research & Practice, 27*, 2012, pp.152–166.

M. Montague, “Self-regulation strategies to improve mathematical problem solving for students with learning disabilities,” *Learning Disability Quarterly, 31*, 2008, pp. 37–44.
Y. Xin, D. Zhang, J. Park, K. Tom, A. Whipple, and L. Si, “A comparison of two mathematics problem-solving strategies: Facilitate algebra-readiness,” *The Journal of Educational Research, 104*, 2011, pp. 381–395.

In this section, we look at some of the various pedagogical strategies for teaching students with learning disabilities. Educators have a broad array of instructional approaches and strategies at their disposal, some of them more effective than others. We recommend that teachers select their instructional tactics only after carefully considering the research evidence. The field of learning disabilities has a history of “jumping on the bandwagon” and vigorously advocating a particular instructional approach or strategy; unfortunately, in some cases, these procedures were lacking in empirical support. It is important, therefore, for teachers to validate the effectiveness of their interventions.

We have chosen to examine three broad approaches to teaching academic skills: cognitive training, direct instruction, and learning strategies. Keep in mind that there is no “silver bullet” or magic formula for teaching students with learning disabilities; in most instances, it is a matter of matching the needs of the student to a particular instructional model.

Cognitive Training

Cognitive training is an umbrella approach covering a variety of educational procedures. It seeks to manipulate or modify a student’s underlying thought patterns to effect observable changes in performance. Proponents of this approach believe that what occurs internally in the learner during the learning process is just as important as what happens externally. The pupil is seen as the critical agent in determining how information is processed—that is, identified, interpreted, organized, and utilized (Mercer & Pullen, 2009). Self-instruction and the use of mnemonic strategies are two instructional techniques frequently associated with cognitive training.

Developed by Meichenbaum (1977; Meichenbaum & Goodman, 1971), **self-instruction** is a strategy whereby students initially talk to themselves out loud while performing a task—children verbalize instructions necessary to complete the activity and then verbally reward themselves for success. Self-instruction makes the pupil aware of the various steps used in problem solving and then gradually brings these strategies under covert verbal control. According to Hallahan et al. (2005) and Lerner and Johns (2015), the following six steps are typically used during cognitive training:

self-instruction A cognitive strategy for changing behavior; pupils initially talk to themselves out loud while performing a task and verbally reward themselves for success.

1. Student observes the teacher perform a task while verbalizing aloud:
    a. Questions about the activity
    b. Instructions on how to perform the task
    c. A self-evaluation of performance
2. Pupil performs the task with the teacher providing verbal directions.
3. Child performs the activity while verbalizing aloud.
4. Student performs the task while whispering instructions.
5. Pupil performs the activity while using covert or inner speech.
6. Child monitors and self-evaluates own performance (for example, “I did a good job” or “I need to work faster”).

The goal of cognitive training, considered by some authorities to be a form of cognitive behavior modification, is not only to modify the pupil’s behavior but also to increase the learner’s awareness of the behavior and the thinking process affiliated with it (Lerner & Johns, 2015). Cognitive training has proven to be a beneficial strategy for remediating a wide variety of academic difficulties typically encountered by individuals with learning disabilities (Hallahan et al., 2005). Table 7.3 provides a list of suggestions for teachers using cognitive training strategies.

Table 7.3 Principles of Effective Cognitive Training Programs

Table 7.3 Principles of Effective Cognitive Training Programs

Principle	Example

Principle	Example
Teach a few strategies at a time	Rather than bombard children with a number of strategies all at once, teach them just a few. In this way, there is a better chance that the students can learn the strategies in a comprehensive and not a superficial fashion.
Teach self-monitoring	It is helpful if students keep track of their own progress. When checking their own work, if they find an error, they should be encouraged to try to correct it on their own.
Teach them when and where to use the strategies	Many students with learning disabilities have problems with the metacognitive skill of knowing when and where they can use strategies that teachers have taught. Teachers must give them this information as well as extensive experience in using the strategies in a variety of settings.
Maintain the students' motivation	Students need to know that the strategies work. Teachers can help motivation by consistently pointing out the benefits of the strategies, explaining how they work, and charting students' progress.
Teach in context	Students should learn cognitive techniques as an integrated part of the curriculum. Rather than using cognitive training in an isolated manner, teachers should teach students to employ cognitive strategies during academic lessons.
Don't neglect a nonstrategic	Sometimes those who use cognitive training become such avid proponents of it that they forget

Principle	Example
knowledge base	the importance of factual knowledge. The more facts children know about history, science, math, English, and so forth, the less they will need to rely on strategies.
Engage in direct teaching	Because the emphasis in cognitive training is on encouraging students to take more initiative in their own learning, teachers may feel that they are less necessary than is actually the case. Cognitive training does not give license to back off from directly teaching students. Students' reliance on teachers should gradually fade. In the early stages, teachers need to be directly in control of supervising the students' use of the cognitive strategies.
Regard cognitive training as long term	Because cognitive training often results in immediate improvement, there may be a temptation to view it as a panacea or a quick fix. To maintain improvements and have them generalize to other settings, however, students need extensive practice in applying the strategies they have learned.

Source: Adapted from D. Hallahan, J. Lloyd, J. Kauffman, M. Weiss, and E. Martinez, *Learning Disabilities*, 3rd ed. (Needham Heights, MA: Allyn & Bacon, 2005), p. 239. Reprinted with permission.

Mnemonic strategies are memory tools for helping students recall facts and relationships. Teachers frequently help their students transform abstract material into a more concrete form by constructing personally meaningful representations of the information—that is, a picture or pattern of letters. For example, one popular trick frequently used by beginning music students to help recall the treble staff is the acrostic "**E**very **g**ood **b**oy **d**oes **f**ine," which represents the notes e, g, b, d, and f.

mnemonic strategy A cognitive approach used to assist pupils in remembering material; the use of rhymes, pictures, acronyms, and similar aids to help in recall.

Direct Instruction

Unlike cognitive training with its emphasis on the uniqueness of each learner, **Direct Instruction (DI)** focuses on the characteristics or components of the task or concept to be learned. The aim of DI is to produce gains in specific academic skills without worrying about possible processing deficits. “The key principle in Direct Instruction,” Gersten, Carnine, and Woodward (1987) write, “is deceptively simple. For all students to learn, both the curriculum materials and teacher presentation of these materials must be clear and unambiguous” (pp. 48–49).

Direct Instruction (DI) A teacher-directed instructional technique used to produce gains in specific academic skills; emphasizes drill and practice along with immediate feedback and reward.

Based on the pioneering work of Bereiter and Engelmann (1966) in the 1960s, DI represents a highly organized instructional approach. Proponents of this model emphasize controlling details of instruction so as to actively engage students’ involvement in learning. Drill and practice are stressed. DI lessons, which are teacher directed, are precisely scripted, fast paced, and typically presented to small groups of children, usually five to ten. Teachers lead their students using a “script” or precisely worded lesson in an effort to ensure consistency and quality of instruction. Teachers elicit student response via hand signals or cues (such as clapping or snapping the fingers), which results in choral or unison responding by the group. This technique is designed to maintain the pupils’ attention. Correct answers are immediately praised, and incorrect responses receive corrective feedback.

Learning strategies help pupils become more actively engaged in their own learning.

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According to Lerner and Johns (2015), qualities of DI include the following:

1. Academic skills directly taught
2. Teacher-controlled and -directed instruction
3. Carefully sequenced and structured materials
4. Clear student goals
5. Sufficient instructional time
6. Continuous monitoring of student performance
7. Immediate feedback to students
8. Continuous instruction until mastery is achieved

The effectiveness of this skills training instructional model is well documented. Students exposed to DI methods demonstrate significant gains in academic learning (Arthur & Stockard, 2014; Marchand-Martella, Slocum, & Martella, 2004; Stockard, Carnine, Rasplica, Paine, & Chaparro, 2015; Vaughn & Linan-Thompson, 2003; Walker, Shippen, Alberto, Houchins, & Cihak, 2005). Several different types of commercial programs based on DI teaching principles are available in the areas of reading, language, mathematics, social studies, and science.

Learning Strategies

Some authorities believe it is not enough to teach specific academic skills to pupils with learning disabilities. Many of these students tend to be passive and inefficient learners because they often lack systematic strategies and plans for remembering, monitoring, and directing their own learning. In contrast to proficient learners, individuals with learning disabilities haven't learned the "tricks of the trade"—the secrets to being a successful student (Lerner & Johns, 2015). A **learning strategies** approach to instruction focuses on teaching students *how* to learn—how to become a more purposeful, active, and efficient learner.

> **learning strategies** Instructional methodologies focusing on teaching students how to learn; designed to assist pupils in becoming more actively engaged and involved in their own learning.

Unlike other instructional methodologies, which focus on learning a particular task or academic content, learning strategies are seen as the "techniques, principles, or rules that facilitate the acquisition, manipulation, integration, storage, and retrieval of information across situations and settings" (Alley & Deshler, 1979, p. 13). In other words, learning strategies are the tools that individuals use to help themselves learn and recall new material. The goal of this approach is to help students become more actively engaged and involved in their own learning.

Learning strategies are skills for learning. Probably the most widely used model for teaching these skills, which has evolved after years of research, is the Strategies Intervention Model (SIM) developed by scholars at the University of Kansas (Deshler, Ellis, & Lenz, 1996; Lenz, Ellis, & Scanlon, 1996). Renamed the Strategic Instruction Model, this approach is one of the field's most comprehensive models for providing strategy instruction. It can, according to one authority, "be used to teach virtually any strategic intervention" (Sturomski, 1997, p. 7).

Most often used with adolescents who are learning disabled, the SIM can be applied to all areas of curriculum typically encountered by middle school and high school students. This pedagogical technique emphasizes the

cognitive aspects of learning rather than focusing on mastering specific subject content (Lenz & Deshler, 2004).

Success has been demonstrated across a wide range of academic areas, including essay writing, study skills, reading comprehension, math problems, and science (Bender, 2008). A learning strategies approach is especially relevant for today's classroom. As more emphasis is placed on exposure to the general education curriculum, this model can assist students in meeting this demand. With its emphasis on mastering cognitive strategies and empowering the student, a learning strategies model is a natural complement to the general classroom curriculum.

We believe, as others do, that no one instructional approach can meet the vast and complex needs of all individuals with learning disabilities. Teachers need to have an array of interventions at their disposal. Success in the classroom often depends, in part, on the match between learner characteristics and the teaching techniques used.

The accompanying Strategies for Effective Teaching and Learning feature offers instructional recommendations that have been found to be effective with some students who are learning disabled.

Strategies for Effective Teaching and Learning

Suggestions for Teaching Students With Learning Disabilities

- Capitalize on the student's strengths.
- Provide high structure and clear expectations.
- Use short sentences and a simple vocabulary.
- Provide opportunities for success in a supportive atmosphere to help build self-esteem.
- Allow flexibility in classroom procedures (for example, allowing the use of audio recorders for note-taking and test-taking when students have trouble with written language).
- Make use of self-correcting materials that provide immediate feedback without embarrassment.
- Use computers for drill and practice and teaching word processing.

- Provide positive reinforcement of appropriate social skills at school and home.

Source: Adapted from National Dissemination Center for Children with Disabilities, *Fact Sheet No. 7: Learning Disabilities* (Washington, DC: Author, 2004, 2011).

Making Inclusion Work
Individuals With Learning Disabilities

My training in the field of special education began many years ago in South America where it was common practice to teach children with disabilities in self-contained classrooms. After I transferred to the United States and earned a degree in special education, the range of possibilities for educating children with disabilities was a welcomed change. Starting out as a resource room teacher and eventually becoming an inclusion specialist has been an interesting and rewarding educational experience.

Inclusive Education Experience

Evolving into an inclusion teacher from a resource room teacher has definitely been an interesting journey. In the beginning it was challenging, although I welcomed the opportunity to serve my students in their least restrictive environment. It was difficult, however, for some general education teachers. This was especially true of the veteran teachers who did not understand the purpose of having students with disabilities in their classroom as well as having another educator in "their room." When the time came to implement the accommodations stated in the students' individualized education programs (IEPs), some teachers had difficulty understanding the need for the accommodations. A few made comments relating to the fact that the children should be able to do the work if they were being served in the regular classroom, while others alluded to the fairness to the other children. Working through this process was trying at times. This was especially true when working with students with learning disabilities—mainly because their disability is not readily obvious. Often, general educators could not figure out why these children were not performing like the rest of the class. Many times these children were labeled lazy, or they were simply misunderstood. It took the general education teachers some time to appreciate the benefits of inclusion for *all* students in the class. It took some convincing and collaboratively working with them on a daily basis to make it successful.

Through the years I have seen tremendous changes toward the acceptance of children with disabilities. General educators have become more knowledgeable about pupils with disabilities thanks, in part, to working collaboratively with special educators. Working together as a team has proven to be the most productive and effective way to teach students with special needs.

Strategies for Inclusive Classrooms

The support of the school administration is the backbone of any solid inclusion program. It takes a great deal of time to effectively plan for students in an inclusive class. I would say this is one of the most important aspects of an inclusion model. It is crucial that the general education teacher has time to meet and plan with the special education teacher. It is important to communicate openly about students' needs. It is necessary to evaluate the effectiveness of the various instructional strategies used in the classroom and to be sure that the needs of all learners are being met. It is vitally important that related service providers, paraprofessionals, and other individuals working with these students be informed of their progress or the problems that sometimes arise.

Successful Collaboration

Successful collaboration entails a wide variety of options. In my opinion, one of the most important things that special educators can do is to earn the trust of the teacher(s) they work with on a daily basis. When there is trust in the relationship, collaboration will naturally fall into place. It is important that the special educator and general education teacher share responsibilities for all students. Together they plan and implement strategies that will benefit not only students with IEPs, but all children in the class. Each teacher brings his or her own strengths, skills, and knowledge to the classroom in an effort to serve all students. It is important that if problems ever develop, both the special educator and the general education teacher support each other and work together in problem solving.

Working With Parents and Families

Parent and family involvement is crucial. Parents' input during the development of the IEP is extremely important since they work with the child on a daily basis outside of school. It is necessary that they share their concerns with the team in order to better serve their son or daughter. Parents need to become "educators" and help their child continue the learning process at home. Additionally, it is important that parents communicate openly with their child's teachers and provide feedback. Together parents and school personnel can provide an effective inclusive environment that meets the unique needs of the child.

Advice for Making Inclusion and Collaboration Work

Making inclusion and collaboration work entails a wide array of strategies. It is not an easy task and takes hours of planning to successfully implement, but the results are worth it. Yet, even when school personnel and parents have their hearts in the right place, difficulties may arise that make the process extremely frustrating. This is when all concerned need to focus on the common goal of what is best for the child. Administrative support, teachers working together for the good of all children, and active parent involvement often result in a successful inclusive environment benefiting all students.

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Technology and Individuals With Learning Disabilities

Students with learning disabilities can benefit from the use of assistive technology. Often for students with learning disabilities, assistive technology can serve as a cognitive prosthesis—helping students to compensate for challenges as well as become more effective and efficient learners (Bouck, 2017; Bryant & Bryant, 2012; Edyburn, 2006). Much of the assistive technology considerations for students with learning disabilities address content-area learning (see Chapter 5 for a more in-depth discussion). For example, audiobooks or text-to-speech can help students compensate for reading challenges. Similarly, computers (word processing programs) and their related software (for example, speech-to-text, word prediction, spell checkers) can benefit students with writing challenges. Finally, calculators can aid students with learning disabilities who struggle with calculation or the processing of basic mathematics facts. Aside from content-area support, assistive technology can also help students with learning disabilities with regard to organization and self-management (Courtad & Bouck, 2013). Students with learning disabilities can use technology such as Livescribe™ smartpens to take notes; the pen has the capability of recording the audio of a lecture or discussion while a student simultaneously takes notes on its accompanying special paper. Smartphones and other portable, mobile technologies can also help students with memory problems (for example, alarms, reminders, calendars). See the accompanying Spotlight on Technology feature for additional ways assistive technology can benefit pupils with learning disabilities.

Spotlight on Technology

As noted, much of the attention to assistive technology for students with learning disabilities involves a focus on academics, such as reading, writing, and mathematics, or supporting academic learning, such as note-taking. In this Spotlight on Technology, we focus on virtual manipulative apps for mobile devices and the internet to support mathematics.

Internet-Based		Apps for Mobile Devices	
Name	Information	Name	Information
National Library of Virtual Manipulatives (http://nlvm.usu.edu)	A website that provides free virtual manipulatives to support preK–12 students in numbers and	Brainingcamp apps (www.brainingcamp.com)	For-purchase apps for iPads and Chromebooks include Algebra Tiles, Base Ten Blocks,

Internet-Based		Apps for Mobile Devices	
Name	Information	Name	Information
	operations, algebra, geometry, measurement, and data analysis and probability		Color Tiles, Cuisenaire® Rods, Fraction Circles, Fraction Tiles, Geoboard, Hundred Board, Linking Cubes, Number Line, Pattern Blocks, Place Value Disks, Rekenrek, Two-Color Counters, and XY Coordinate. Note the apps also exist for the web.
National Council of Teachers of Mathematics Illuminations (https://illuminations.nctm.org)	Free applets available to support a variety of mathematical ideas, including fractions, algebra, geometry, and patterns	The Math Learning Center Apps (www.mathlearningcenter.org/resources/apps)	Apps for iPads and Chromebooks include Fractions, Geoboard, Math Clock, Math Vocabulary Cards, Money Pieces, Number Frames, Number Line, Number Pieces, Number Rack, and Pattern Shapes. Note the apps also exist for the web.

Services for Young Children With Learning Disabilities

Determining whether a young child is learning disabled, or at risk for learning disabilities, is a difficult task. Many professionals believe that the earlier we identify a child as such, the sooner intervention can be initiated; of course, prevention is always preferable to remediation. Yet the notion of a preschool child having a learning disability is controversial. Testing at this age is mainly for purposes of prediction, not identification. The challenge confronting educators is determining which factors are truly indicative of future learning difficulties and which are simply manifestations of variation in growth and development. It is not uncommon for professionals to talk about a young child's being at risk for problems in learning and development. Because of their exposure to adverse circumstances, some youngsters experience greater vulnerability and have a heightened potential for future problems in the classroom. Factors that *may* place a child at risk (Gargiulo & Kilgo, 2020; National Joint Committee on Learning Disabilities, 2019) include the following:

- Accidents and head trauma
- Chronic poverty
- Home environment lacking adequate stimulation
- Inadequate maternal and infant nutrition
- Low birth weight
- Maternal alcohol and drug abuse
- Oxygen deprivation
- Prematurity
- Prolonged or unusual delivery
- Rh incompatibility

Remember, these factors do not guarantee that problems will arise; they only set the stage. Many young children are subject to a wide variety of risks yet never evidence any problems in school.

A related controversy is the application of the *learning disability* label to preschoolers. The regulations accompanying the current federal definition of learning disabilities consider deficits in academic performance and a discrepancy between a child's ability and academic achievement when identifying a pupil as learning disabled. How appropriate is this label when most preschoolers have not been exposed to academic work? Academic tasks are typically not introduced until the first grade, although we recognize that a growing number of kindergartens and some preschools are stressing preacademic skills. Vaughn and Bos (2015) characterize the use of a discrepancy approach for identifying a learning disability in young children as a "wait to fail" method for ascertaining who may be eligible for special educational services. We believe that the needs of the young child are best served when professionals focus on possible antecedents of learning difficulties. Simply observing the child engaging in a variety of age-appropriate activities (for example, using scissors, coloring, skipping, following directions) and noting any difficulties in performing the tasks may suggest potential problems. Remember, these may simply be warnings; they do *not* mean that learning problems will inevitably appear later in school.

Adolescence can be an especially difficult time for students with learning disabilities.

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There is also a growing reluctance among some educators to label young children as having a learning disability. Instead, the more generic, and less

stigmatizing, noncategorical label *developmentally delayed* is finding increasing favor in some professional circles. The reauthorization of IDEA in 1997 (PL 105–17) allowed states to use this descriptor for children ages 3 through 9 who require a special education and related services. Unfortunately, there is no federal definition of this term; each state is responsible for determining what the label means. Despite this drawback, this label suggests a developmental status and not a disability category, which hopefully will result in more inclusive models of service delivery (Gargiulo & Kilgo, 2020).

Transition Into Adulthood

Adolescence is a difficult period for many young persons, but especially for students with learning disabilities. These individuals frequently have a history of failure at academic tasks, a diminished self-concept, a lack of motivation, and some degree of social ineptness. The daily demands encountered in high school often make it extremely difficult for adolescents with learning disabilities to succeed. Mercer and Pullen (2009) identify some of the many challenges confronting these pupils:

- Demonstrating knowledge through tests
- Exhibiting motivation and sustained effort
- Gaining information from lectures and written materials
- Interacting appropriately
- Working independently with little feedback

Only recently have professionals become cognizant of the unique requirements facing students with learning disabilities in secondary schools. For many years, educators incorrectly assumed that children with learning disabilities would simply “outgrow” them. As a result, adolescents with learning disabilities have received less attention than their younger counterparts. What professionals failed to realize is that problems with attention and memory, deficits in planning and organizing, and difficulties with problem solving often continue well into adolescence and beyond (see the accompanying First Person feature).

One of the purposes of an education is to prepare individuals to lead independent and productive lives as adults—to become contributing members of society. Unfortunately, our educational system has a less than stellar record of success with secondary students who are learning disabled. Recent statistics compiled by the U.S. Department of Education (2018) indicate that three out of four students with learning disabilities graduate from high school with a regular diploma while over 17 percent drop out of school—the third-highest dropout rate of all pupils with disabilities. One

can only conclude that our schools are failing to appropriately serve the vast number of these students.

First Person: Christopher In His Own Words

What can you tell us about yourself and your family?

My name is Christopher. I am a freshman at Oak Mountain High School. I am dyslexic and have a hard time reading and spelling. I have to get audiobooks or friends and family to help me with reading. I enjoy hands-on activities like building and drawing. I play football, lacrosse, and I also wrestle.

I have a brother and a sister who are also into sports and, like me, enjoy playing video games. My brother is visually impaired (around 20/600) from cone and rod dystrophy. I have to help him a lot with simple tasks at home and wherever we go. He helps me with spelling and math because he is really smart. He would help me more with reading if he could see better. My sister loves animals and rides English style in horse shows.

We go up to Pennsylvania once a year during Thanksgiving or Christmas to visit my relatives on my mom's side. All of my relatives on my dad's side live in Alabama, so I get to see them a lot.

What do you like to do in your free time?

I spend most of my free time playing sports and video games. For football, I play on the defensive line (noseguard) and started last fall for the Oak Mountain freshman team.

I also wrestle for Oak Mountain High School. Although my weight (194 pounds) is in the bottom of the 215-pound weight division, I sometimes have to wrestle in the heavyweight division (up to 285 pounds) for junior varsity because there is no one else that size on our team. This means that I sometimes wrestle people who are up to 90 pounds heavier than I am!

This is my first year to play lacrosse. I play for the Altamont Knights because my high school does not yet have a lacrosse team. I play "attack," which is the offensive side that is trying to score goals on the other team's defense.

When not playing sports, I like to play on my Xbox 360. I especially enjoy playing online with all my friends. My favorite game is *Call of Duty: Modern Warfare 2*.

I also enjoy traveling during breaks from school. I have gone to Australia and Europe with an organization called People to People Student Ambassadors. I also go on a lot of fun trips with my family like to Las Vegas, New York, or the beach.

I also volunteer with Special Equestrians where I help kids with physical and mental challenges ride horses. I really enjoy it and have made many new friends.

What can you tell us about your experience at school?

I go to school like every other normal 15-year-old. I take the same classes that everyone else takes except I have a help period where I get extra time for tests and have teachers read the tests to me. My favorite thing about school is seeing all of my friends and talking with them. My least favorite thing about school is homework because it takes me two times longer to do it than regular kids. I also count studying as homework. Unlike all of my friends (my friends don't consider studying homework and don't study!), I will study for several hours, sometimes staying up late at night and waking up very early in the morning before school.

One of my favorite memories of school is yelling my lungs out with my football friends at the pep rallies. My favorite subjects in school are science and history. I have all As in school.

What can you tell us about your work background?

The only work experience I really have is refereeing soccer games. I started refereeing when I was 12 years old. Unlike other jobs, I get to pick my own schedule, and the pay is good. I enjoy working with other referees I have gotten to know. I usually referee four or five games a week when I don't have a conflict.

What do you see yourself doing in the future?

I am not exactly sure what kind of job I want, but I know I want to do something hands-on. I plan on going to college, but I am not sure what my major would be at this time. As a part of my individualized education program, I will be researching possible career opportunities next year.

What is one thing you want people to remember about you?

I want people to remember that I am a hard worker and will do whatever it takes to get the job done.

It was quite shocking to discover that our son Christopher had dyslexia. It was difficult to know what we could do for him. We kept him at a Montessori school through sixth grade because we believed that the small class and school size would benefit him. However, the Montessori school full-sized classes ended at sixth grade. Also, after sixth grade, we knew his sports opportunities would be severely limited if he did not attend a public school. So, the decision was made to transfer Christopher to Oak Mountain Middle School.

I was pleasantly surprised at how well Christopher was able to fit into the school and how accommodating the faculty was. He worked hard, and his grades have been exceptional. In addition to his great academic work, Christopher won a character award from the

school's faculty, presented to him and a few other students at a schoolwide assembly. We are as proud of that award as we are of his grades.

I am not sure what the future holds for Christopher, but I feel good about it knowing the character and work ethic that Christopher has!

One means of remedying this situation is through the development of a customized transition plan. PL 108–446 mandates that a transition plan be part of each adolescent's IEP. The purpose of this document is to develop goals and activities that are individually tailored to fulfill the student's postschool aspirations. Developing a meaningful individualized transition plan (ITP) is a team effort requiring the active involvement of professionals, parents, and, perhaps most important, the student—after all, it is his or her life goals that the document addresses. Transition planning typically focuses on several different streams or options, including vocational training, preparation for postsecondary educational opportunities, or various employment possibilities.

Careful transition planning is crucial for successful adjustment later in life. The secondary school curriculum must not only prepare adolescents with learning disabilities academically, but it should also focus on preparation for future challenges such as independent living, employment options, and postsecondary schooling. Additionally, we believe that transition plans, after considering the individual needs of the student, should focus on self-determination, social skills, and assistance with understanding and adjusting to one's lifelong disability.

IDEA 2004 added a new step in transition planning for students exiting high school either by fulfilling graduation requirements or because they exceed the age of eligibility. These adolescents are to receive a **summary of performance** or **SOP**. This document reviews the individual's academic accomplishments as well as functional performance while also offering specific recommendations on the steps necessary to meet his or her postsecondary goals. The SOP, which identifies needed supports and services in the community, is a vital planning document designed to ensure future success as the young person moves forward toward adulthood (Austin & Wittig, 2013).

summary of performance (SOP) Required by federal regulation for each student who exits secondary school, a summary of the individual's academic achievement and functional performance with recommendations for supports and services aimed at assisting the adolescent in achieving his or her transition goals.

Adults With Learning Disabilities

The needs of adults with learning disabilities have traditionally received little attention; only recently have professionals begun to focus on this group. In many instances, however, a learning disability is a lifelong problem; many of the characteristics of learning disabilities persist into adulthood (Church & Lewis, 2019; Cortiella & Horowitz, 2014). Adults with learning disabilities sometimes have great difficulty “finding their niche in the world” (Lerner & Johns, 2015, p. 278). A learning disability typically interferes with living independently, obtaining and maintaining employment, maintaining social relationships, and experiencing satisfaction with life in general (Tymchuk, Lakin, & Luckasson, 2001).

One should not necessarily paint a bleak picture for adults with learning disabilities. Many of these individuals achieve success and enjoy a life of quality. Successful adults establish goals, work hard, and exhibit a high degree of perseverance while also acknowledging their limitations (Scanlon, Patton, & Raskind, 2017; Wiener & Timmermanis, 2012). Table 7.4 identifies some of the characteristics exhibited by successful and unsuccessful adults with learning disabilities.

Table 7.4 Characteristics of Successful and Unsuccessful Adults With Learning Disabilities

Table 7.4 Characteristics of Successful and Unsuccessful Adults With Learning Disabilities

Successful Adults	Unsuccessful Adults
Maintain perseverance in dealing with life events	Do not understand or accept their learning disability
Develop coping strategies and know how to reduce stress	Fail to take control of their lives

Successful Adults	Unsuccessful Adults
Maintain emotional stability	Maintain a sense of learned helplessness and fail to assume responsibility
Have and use support systems	Seek and promote dependent relationships
Demonstrate motivation and persistence	Exhibit a lack of drive and motivation
Pursue careers that maximize their strengths and minimize their weaknesses	Fail to establish social support systems
Develop creative ways to compensate and problem-solve	Drop out of secondary school
Maintain a positive attitude toward learning	

Source: Adapted from C. Mercer, *Students With Learning Disabilities*, 5th ed. (Upper Saddle River, NJ: Prentice Hall, 1997), p. 400. Reprinted by permission of Pearson Education, Inc., Upper Saddle River, NJ.

Postsecondary educational opportunities are becoming increasingly common for adults with learning disabilities. Researchers estimate that about 21 percent of students with learning disabilities were enrolled, at some point in time, in four-year colleges or universities. Likewise, an additional 50 percent attended, at some point after high school, two-year institutions such as community colleges while 36 percent were enrolled in vocational/technical schools (Cortiella & Horowitz, 2014; Newman et al., 2011). These figures represent a dramatic increase in the number of students with learning disabilities seeking postsecondary learning experiences. Unfortunately, many young adults with learning disabilities do not fully

consider their postsecondary options. The Americans with Disabilities Act (PL 101–336) along with Section 504 of PL 93–112, which prohibits discrimination against individuals with disabilities, requires colleges and universities to offer reasonable accommodations to students with learning disabilities (and other impairments). Accessing support and services, however, requires that individuals self-disclose their learning disability—which some students may be reluctant to do. One recent report found that only about one in four students informed college officials of their learning disability (Horowitz et al., 2017). Typical accommodations for college students with a learning disability include extra time on exams, taking exams in a different format (for example, substituting an oral exam for a written one), waiving or substituting certain course requirements (for example, a foreign language), and using volunteer note-takers for lectures (Hallahan et al., 2005).

Success in college obviously requires more than just course accommodations. Students must exhibit appropriate social skills, learn time management and organization skills, and develop self-discipline, effective study habits, and, perhaps most important, self-advocacy. Most institutions of higher education have an office of disability support services that provides students with disabilities with an array of special services designed to meet their unique requirements and enhance their chances of earning a degree.

Young adults with learning (and other) disabilities seeking a postsecondary education may benefit from bipartisan legislation introduced in the U.S. Senate as well as the U.S. House of Representatives in June 2017. Senate Bill 1295, known as the Respond, Innovate, Succeed, and Empower (RISE) Act, and the similarly titled House Resolution 2782 amend the Higher Education Act of 1965. This proposed legislation, which is in the process of becoming law, would require institutions of higher education to accept a student's IEP, a 504 plan, or notice from a licensed professional (for example, a medical doctor or psychologist) as evidence of a disability when a student seeks accommodations. This provision would eliminate the costly expense to the student and his or her family of having to provide documentation of a disability to colleges and universities. Another key

provision of this proposed legislation would provide professional development opportunities to faculty about disabilities, accommodations, and effective instructional strategies. This legislation is endorsed by over fifteen professional organizations and associations. Unfortunately, two years after its introduction, this bill still hasn't been enacted into law.

Employment and vocational accomplishment is another concern for adults with learning disabilities. Gainful employment is a goal that many individuals with learning disabilities seek, and in many instances, this goal is achieved. Research indicates that between 46 and 75 percent of individuals with a learning disability are competitively employed, with males having a higher success rate of employment (Church & Lewis, 2019; Cortiella & Horowitz, 2014; Gonzalez, Rosenthal, & Kim, 2011). Employment success is often dependent on the individual's literacy skills, his or her ability to self-advocate, and the development of work-related social competencies so that he or she becomes workplace savvy or literate. Approximately one out of five young adults with a learning disability report that their employer is aware of their disability, with 5 percent receiving workplace accommodations (Horowitz et al., 2017).

Family Issues

A learning disability is a family affair; it affects not only the individual but, in many instances, parents, siblings, grandparents, and extended family members. Parents pay a heavy emotional toll as they deal, on a daily basis, with their son or daughter's learning and behavioral difficulties. Yet most families of children with learning disabilities are not dysfunctional but well adjusted (Dyson, 1996).

Brothers and sisters of an individual with learning disabilities may also be affected by their sibling's disability. Feelings of embarrassment, anger, and resentment are not unusual. Although in some families siblings are adversely affected, in others brothers and sisters adjust well and seem to positively benefit from their relationships (Dyson, 1996). Positive sibling adjustment appears to be associated with parental acceptance of the child with a disability.

In keeping with the idea that parents are crucial to the well-being and adjustment of the family, Lerner and Johns (2015) offer the following recommendations for parents:

- Become an informed consumer—educate yourself about learning disabilities.
- Be an assertive advocate—protect your child's legal rights while also seeking appropriate programs in the community as well as schools.
- Be firm yet empathetic in managing the child's behavior.
- Devote time and attention to other family members.
- Make a life for yourself.

Issues of Diversity

Currently, more than five out of every ten U.S. students is black, Hispanic, or Asian American (National Center for Education Statistics, 2018). Researchers believe that by the year 2020 students of color will represent about half of the entire school-age population in the United States (Gollnick & Chinn, 2017).

Teachers, therefore, will very likely confront significant challenges in their attempts to meet the educational needs of students from culturally and linguistically diverse backgrounds, but especially pupils with limited English language skills. One major issue for educators working with these students is distinguishing between learning problems that may arise from cultural or language differences and those that are truly due to a learning disability. It is crucial that teachers make every effort to differentiate between differences and disabilities; cultural and linguistic differences must not be interpreted as a disability.

Recent federal data reveal that 46 percent of Hispanic students with a disability are considered to have a learning disability, closely followed by American Indian or Alaska Native pupils with a disability, 44 percent of whom are identified as learning disabled. Likewise, 40 percent of black students receiving a special education are recognized as having a learning disability. By way of comparison, approximately one out of three (34%) white students with a disability are learning disabled while 24 percent of Asian students with a disability are acknowledged to have a learning disability. Finally, over 50 percent of Native Hawaiian or Other Pacific Islanders exhibit a learning disability (U.S. Department of Education, 2018). These statistics seem to suggest that, in some instances, we need to vastly improve our assessment procedures when evaluating culturally and linguistically diverse students for a possible learning disability.

Evaluating students who are culturally and linguistically diverse for a possible learning disability is a difficult task.

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Trends, Issues, and Controversies

The field of learning disabilities abounds with issues and controversies. We have chosen to briefly examine one contemporary issue that confronts the field today: full inclusion.

Challenges in Service Delivery: The Full Inclusion Movement

The subject of serving students with learning disabilities in full inclusion classrooms is one of the most controversial issues confronting the field of learning disabilities. Parents, policy makers, educators, and administrators alike continue to wrestle with this emotionally charged topic, and we find powerful arguments on both sides of this issue (Spence-Cochran, Pearl, & Walker, 2013; Vaughn et al., 2018).

The issue of full inclusion is sometimes portrayed as one of equity—a belief that individuals with disabilities have a right to participate in normalized educational experiences and should not be excluded from this opportunity simply on the basis of their impairment(s). Some proponents (Peterson & Hittie, 2010; Sailor & Rogers, 2005) argue that students with learning disabilities deserve to be educated in the general education setting while others view full inclusion as a moral imperative (Specht, 2013).

As we saw earlier in this chapter, the regular classroom is currently the most popular placement for serving students with learning disabilities. Promoters of full inclusion believe that full-time placement in the general education classroom will result in enhanced academic performance, greater acceptance by typical peers, and better coordination between regular and special educators. However, those who advocate maintaining a continuum of service delivery options point out that pupils with learning disabilities are often poorly served in general education settings (McLeskey, Hoppey, Williamson, & Rentz, 2004; McLeskey & Waldron, 2011; Zigmond, 2003). The research evidence also fails to support the efficacy of full inclusion for all students with learning disabilities (Fuchs & Fuchs, 2009; Zigmond & Kloo, 2017). Concerns about a lack of individualization of instruction (Zigmond & Baker, 1996) and apprehension about the appropriateness of exclusive exposure to the general education curriculum (Fuchs & Fuchs, 2009; Martin, 2002) are among the reasons that some special educators do not fully embrace full inclusion. Many national and international

professional organizations and groups concerned with learning disabilities (for example, the National Joint Committee on Learning Disabilities, the Learning Disabilities Association of Canada) have adopted policy statements in opposition to full inclusion. The accompanying Insights feature presents one such position paper.

Insights
Learning Disabilities Association of America

Position Paper on Full Inclusion of All Students with Learning Disabilities in the Regular Education Classroom

January 1993, Updated June 2012

The Learning Disabilities Association of America does not support full inclusion or any policies that mandate the same placement, instruction, or treatment for all students with learning disabilities. Many students with learning disabilities benefit from being served in the regular education classroom. However, the regular education classroom is not the appropriate placement for a number of students with learning disabilities who may need alternative instructional environments, teaching strategies, and/or materials that cannot or will not be provided within the context of a regular class placement.

LDA believes that decisions regarding educational placement of students with disabilities must be based on the needs of each individual student rather than administrative convenience or budgetary considerations and must be the result of a cooperative effort involving educators, parents, and the student when appropriate.

LDA believes that the placement of all children with disabilities in the regular education classroom is as great a violation of IDEA as the placement of all children in separate classrooms on the basis of their type of disability.

Source: Adapted from the Learning Disabilities Association of America. (1993/2012). *Full inclusion of all students with learning disabilities in the regular education classroom* [Position paper]. Retrieved March 26, 2019, from http://www.ldaamerica.org/advocacy/lda-position-papers/full-inclusion-of-all-students-with-learning-disabilities-in-the-regular-education-classroom/

We believe that a balanced approach to this controversy is necessary. With skillful planning, equitable allocation of resources, a clear delineation of responsibilities, and careful attention to what will be taught and how it will be evaluated, full inclusion is not only feasible but also beneficial for some

students with learning disabilities (Hallahan et al., 2005). Inclusive educational experiences are considered “best for children” when they provide access to the general education curriculum and opportunities to interact with typical peers in meaningful ways, as well as offering instruction that is purposefully planned, intensive, research based, and goal directed (Spence-Cochran et al., 2013).

We strongly encourage educators and other stakeholders to keep in mind the principle of individualization, which is the benchmark of special education. One size (program) does not fit all; it is a matter of a “goodness of fit.” This means that for some children with learning disabilities, full inclusion is appropriate, but other students may be better served in a resource room or other setting. Perhaps our energy and attention should focus on improving the quality of our instructional practices for *all* learners with an emphasis on the individual needs of our students and the outcomes of our instruction rather than the place or location where services are provided.

Chapter in Review

Defining Learning Disabilities (Learning Objective 7.1)

- Persons with learning disabilities are a diverse group of individuals who, despite normal intelligence, fail to learn as easily and efficiently as their classmates and peers.
- The current IDEA definition contains two key concepts: (1) a discrepancy between the student's academic performance and his or her estimated or assumed ability or potential and (2) the proviso that a learning disability cannot be due primarily to factors such as sensory impairments, intellectual disability, emotional problems, or environmental, cultural, or economic disadvantage (the exclusionary clause).
- Learning disabilities make up the largest category within special education, accounting for about 40 percent of all individuals receiving services.
- Government figures indicate that about 2.33 million pupils are identified as learning disabled.

Etiology of Learning Disabilities (Learning Objective 7.2)

- In the vast majority of instances, the cause of a person's learning disability is unknown.
- Researchers offer four possible factors for explaining the etiology of learning disabilities: injury or damage to the central nervous system, heredity, biochemical abnormalities, and environmental factors.

Characteristics of Individuals With Learning Disabilities (Learning Objective 7.3)

- Persons with learning disabilities are a very heterogeneous population.
- The primary characteristics of students with learning disabilities are deficits in academic performance.
- Reading is the most common problem encountered by children identified as learning disabled.
- Some individuals who are learning disabled have difficulty attending to tasks, and some exhibit excess movement and activity or hyperactive behavior. This condition is often identified as attention deficit hyperactivity disorder (ADHD).

Assessment of Learning Disabilities (Learning Objective 7.4)

- State and local school districts now have the option of making eligibility decisions on the basis of how a pupil responds to research-based educational interventions, a process known as response to intervention or RTI.
- Norm-referenced assessments compare an individual's performance to that of a normative group of peers.
- Criterion-referenced assessments provide educators with a description of the student's abilities, measured against a predetermined mastery level.
- Curriculum-based measurement is a type of criterion-referenced assessment.

Educational Considerations (Learning Objective 7.5)

- About nine out of every ten students with learning disabilities spend at least part of their day in the general education classroom.
- There is no one best or correct way to teach individuals with learning disabilities.
- Cognitive training is an approach concerned with the manipulation or modification of a student's underlying thought patterns; self-instruction and mnemonic strategies are examples of cognitive training.
- Direct Instruction (DI) focuses on analyzing the characteristics or components of the task to be learned and actively involving the student in the learning process.
- Learning strategies focus on teaching students how to learn by meaningfully involving them in the instructional process.

Technology and Individuals With Learning Disabilities (Learning Objective 7.6)

- Assistive technology offers many options to the challenges faced by students with learning disabilities.

Learning Disabilities Across the Life Span (Learning Objective 7.7)

- Identifying young children with a learning disability is controversial.
- Many adolescents with a learning disability exit school prior to graduation. Effective transition planning is one possible remedy for this problem.
- Adults with learning disabilities are increasingly taking advantage of postsecondary educational opportunities.
- Competitive employment is a realistic goal for many adults with a learning disability.

Study Questions

1. Developing a definition of learning disabilities has proven to be problematic. Describe three reasons why this process has been so challenging.
2. What are the main components of most definitions of learning disabilities?
3. Identify the four historical phases and their respective contributions to the development of the field of learning disabilities.
4. List four possible causes of learning disabilities. Give an example of each.
5. Identify and describe five learning and behavioral characteristics common to individuals with learning disabilities. In your opinion, which one of these deficits is most debilitating? Why?
6. What is RTI? Describe the intervention process typical of most RTI models.
7. Distinguish between norm-referenced and criterion-referenced assessments. What type of information does each test provide?
8. What is the current trend in educational placement of students with learning disabilities? Do you agree with this trend? Why or why not?
9. Identify the major components of the following instructional approaches used with students who are learning disabled: cognitive training, direct instruction, and learning strategies. What are the advantages and disadvantages of each approach?
10. Why is it difficult to determine if a preschooler is learning disabled?
11. What unique problems confront secondary students with learning disabilities? How can public schools help adolescents meet these challenges?
12. Describe the variables that contribute to the successful adjustment of adults with learning disabilities.
13. In what ways might an individual with learning disabilities affect his or her family?
14. Why is it difficult to distinguish between cultural/linguistic differences and a learning disability?
15. How can technology be used to benefit individuals with learning disabilities?

16. Summarize the controversy surrounding the issue of full inclusion for students with learning disabilities.

Key Terms

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discrepancy, 196
response to intervention (RTI), 196
exclusionary clause, 197
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portfolio assessment, 213
self-instruction, 216
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summary of performance (SOP), 224

Learning Activities

1. Obtain a copy of the definition of learning disabilities from your state department of education, and compare it with the IDEA definition. In what ways are these

definitions similar and dissimilar? Pay particular attention to eligibility criteria. How would you improve your state's definition?

2. Interview a school psychologist or educational diagnostician and inquire about the assessment and identification procedures used to determine if a student is learning disabled. Ask about the strengths and weaknesses of the various assessment instruments. Do the evaluation procedures differ depending on the grade level of the pupil? How is a discrepancy between intelligence and achievement determined? What strategies does this professional use to gather information from parents and teachers? How are children from culturally and linguistically diverse backgrounds assessed? Are RTI procedures being used to identify students with a possible learning disability?
3. Visit an elementary school, a middle school, and a high school in your community that serve individuals with learning disabilities. Observe the students in the classrooms, and interview the general educators and special educators who work with these students. What instructional approaches are used? How are the students evaluated? Does the delivery system vary according to grade level? How do the general and special educators work together? In your opinion, are the children with learning disabilities accepted by their classmates? Identify strengths and weaknesses of the learning disabilities program at each site. Would you want to be a teacher in these schools? Why or why not?
4. Interview a college student with learning disabilities. What types of supports and services does the college/university provide to students with learning disabilities? What academic and/or social areas pose the greatest challenge for this individual? What learning strategies work best for him or her? Ask the person to identify areas of strength both in and out of school. Does the individual require accommodations in the workplace? If so, what types of modifications are necessary? Inquire about the person's postschool plans and the availability of support services in the community.
5. Attend a local chapter meeting of a sibling and/or parent group for individuals with learning disabilities. What issues and concerns were addressed at this meeting? Determine what types of services and supports are available in your community for individuals with learning disabilities across the life span. Ask siblings and/or parents about the challenges and rewards of living with a person with a learning disability.

Organizations Concerned With Learning Disabilities

Council for Learning Disabilities

www.council-for-learning-disabilities.org

Division for Learning Disabilities, Council for Exceptional Children

www.teachingLD.org

International Dyslexia Association

http://dyslexiaida.org

Learning Disabilities Association of America

https://ldaamerica.org

National Center for Learning Disabilities

www.ncld.org

Reflecting on Standards The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Learner Development and Individual Learning Differences (CEC Initial Preparation Standard 1.2)

Reflect on a time when you weren't able to learn a skill or concept as quickly as you wanted to (for example, playing a sport or musical instrument or a particular subject in school). How did you feel about yourself? How did people treat you? What did you learn from that experience that will help you as you work with individuals who have learning disabilities?

Focus on Instructional Planning and Strategies (CEC Initial Preparation Standard 5.2)

Reflect on what you have learned in this chapter about students with learning disabilities. If you were to have a student with a learning disability in your general education class, how might you utilize technology to meet the various demands of your learning environment?

Student Study Site

Sharpen your skills with SAGE edge at **edge.sagepub.com/gargiulo7e**. SAGE edge for students provides a personalized approach to help you accomplish your coursework goals in an easy-to-use learning environment.

8 Individuals With Attention Deficit Hyperactivity Disorder

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Learning Objectives

After reading Chapter 8, you should be able to:

8.1 **Define** attention deficit hyperactivity disorder (ADHD).
8.2 **List** possible etiological factors associated with ADHD.
8.3 **Identify** learning characteristics and social/emotional issues typical of persons with ADHD.
8.4 **Explain** how ADHD is diagnosed.
8.5 **Discuss** instructional and environmental modifications typically used with pupils who have ADHD.
8.6 **Describe** the role of stimulant medication in treating individuals with ADHD.
8.7 **Explain** how assistive technology can benefit students with ADHD.
8.8 **Summarize** the impact of ADHD on adolescents and adults.

Living With Attention Deficit Hyperactivity Disorder: A Sister's Perspective

When I think back on my childhood, some of my most vivid memories are the hours and hours my parents sat with my brother Charles at the kitchen table, bent over his homework, trying desperately to help him. The routine every day was the same: Mom would pick us up from our Catholic grade school, even though we could take the bus, so that she could check and make sure Charles brought home the books he needed to and his homework for the evening. Eventually, even though money was tight, my parents purchased copies of the textbooks. Charles still forgot worksheets, assignments, and tests. He regularly received referrals, our school's most severe censure, for forgetting pencils or being unprepared for class. My mom cried at conferences, my dad became increasingly distraught, and Charles began to believe he just wasn't intelligent. My brother's grade school years felt like attempting to plug a sieve and never quite coming close.

I always knew Charles had attention deficit hyperactivity disorder (ADHD). He was diagnosed early, and my parents quietly tried to medicate him. I don't remember any medication ever being able to even slightly expand his attention span or improve his schoolwork. My brother's teachers were aware of his diagnoses as well, but in a private school there are little to no accommodations. Charles's teachers frequently told my parents that he didn't apply himself and he chose not to work to his full potential. I am a teacher now, and those are the words that always shock me the most when I see old report cards—the idea that Charles chose his struggle.

What always seemed to baffle my parents and his teachers is that if a topic interested Charles, he would study it with an almost obsessive laserlike focus. He understood the physics of flight, theories about dark matter in space, and how any household object works. He was constantly tinkering with some machine. Charles once took apart the calculator my mom kept in her purse for grocery trips and put it back together. The only

problem was when he put it back together some of the numbers were upside down or on the wrong number key. Yet, in spite of his cleverness with electronics, he never earned above a C in any English course. The subjects he did at times enjoy, science and math, were hit or miss depending on the unit. His grades were in constant fluctuation. This sporadic focus, my brother's teachers decided, was evidence of my brother's ability and lack of effort in school.

As frustrating as it was to watch Charles struggle in school, what broke our hearts the most was how he struggled socially. He had very few friends and was painfully socially awkward. When speaking with Charles, he would talk about topic A. The conversation would eventually lead to topic B, but Charles, without transition or warning, would switch back to topic A in the middle of discussing topic B. Then he would switch to topic B, then A, then B, and finally topic C. Having a conversation with someone with ADHD can be so difficult to follow. At times, these people can become stuck on a thread of conversation long after the rest of the group has moved on. They don't always pick up on subtle social cues that their peers are becoming increasingly exasperated. Simply put, Charles struggled to fit in.

Charles's story does have a happy ending. As he advanced in coursework both in high school and in college, he earned better and better grades in science. But learning for Charles has always been a struggle. While an undergraduate, he would leave his laptop and phone in his car and lock himself in his room for hours with just a textbook. He could never handle more than 12 credit hours, but Charles graduated college and became an electrical engineer. Socially, Charles matured and formed a good group of friends in high school. He is happily married now and slowly working on a master's degree in physics.

ADHD is not something that is conquered. It is something that Charles learned to work with and around. Perhaps my brother's greatest accomplishment has not been earning the Dean's list or graduating with an engineering degree; it has been learning to accept the way his mind works and recognizing that he is not deficient in any way, but rather more dedicated because of it.

—*Anonymous*

Attention deficit hyperactivity disorder (ADHD) is one of the most common disorders of childhood but often continues into adolescence and adulthood (National Institute of Mental Health, 2016). It is believed to affect approximately 5 percent of the school-age population (American Psychiatric Association, 2013). Federal statistics from parental reports suggest, however, that 11 percent of school-age children have, at one time, been diagnosed with ADHD, representing 6.4 million children (Centers for Disease Control and Prevention, 2018a). Despite these relatively high estimates of prevalence, ADHD is *not* recognized as a separate disability category under the current IDEA legislation (PL 108–446). However,

students who have ADHD may still be eligible for a special education. In response to the lobbying efforts of parents, professionals, and advocates, in 1991 the U.S. Department of Education issued a memorandum directed to state departments of education, stating that pupils with ADHD could receive a special education and related services under the disability category *other health impairments* (OHI). In fact, the regulations that accompany PL 108–446 specifically mention ADHD as a condition that renders an individual eligible for services under the rubric *other health impairments*. Children with ADHD are also eligible for accommodations in general education classrooms under the protections of Section 504 of the Rehabilitation Act of 1973 (PL 93–112).

Students with ADHD frequently exhibit other academic and behavioral difficulties.

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Because of the high degree of overlap or **comorbidity** among ADHD, learning disabilities, emotional disorders, and other conditions (Glanzman & Sell, 2019; National Institute of Mental Health, 2016) and the academic and social difficulties frequently experienced by individuals with ADHD (Mash & Wolfe, 2019), we have chosen to explore this topic in greater detail in a separate chapter while acknowledging that ADHD is *not* identified by the federal government as a discrete disability category. We believe, however, it is important for educators and other professionals to be able to recognize these students and offer services, supports, and accommodations regardless of how they might (or might not) be labeled.

comorbidity The simultaneous existence of two or more conditions within the same person.

ADHD is frequently misunderstood; it is a disability plagued by misconceptions and myths. The behavior of individuals with ADHD is also often misinterpreted, with their actions being seen as indicators of laziness, disorganization, and even disrespect (Smith, Polloway, Taber-Doughty, Patton, & Dowdy, 2016). Some people even question the legitimacy of this disability, believing that it has only been created to absolve parents (and teachers) of any responsibility for the child's conduct (Nigg & Barkley, 2014).

The goal of this chapter is to examine several concepts and issues associated with ADHD. We will answer a variety of questions, such as "What is ADHD, and what causes it?" "How can I help students with ADHD?" and "What role does medication play in the treatment of ADHD?" We begin our examination by defining the term *attention deficit hyperactivity disorder.*

Defining Attention Deficit Hyperactivity Disorder

Because IDEA does not define ADHD, we use the definition put forth by the American Psychiatric Association (2013), which classifies this condition as a neurodevelopmental disorder portrayed as “a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development” (p. 61). This description, derived from the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.) commonly referred to as DSM-5, also contains criteria to assist professionals, mainly physicians, in determining whether a child has ADHD. Examples of these characteristics are listed in Table 8.1. In examining the table, you may recognize yourself (we are all forgetful at times and occasionally easily distracted); but in individuals with ADHD, it is the chronic nature of the characteristics and their duration that often lead to impaired functioning in activities of daily living.

Table 8.1 Representative Characteristics of Attention Deficit Hyperactivity Disorder

Table 8.1 Representative Characteristics of Attention Deficit Hyperactivity Disorder

Inattention
• Fails to pay close attention to details, often makes careless mistakes
• Has difficulty sustaining attention to tasks or while playing
• Does not seem to listen when directly spoken to
• Fails to complete tasks
• Has difficulty organizing tasks or activities, schoolwork is often

messy and disorganized
• Avoids or resists situations requiring sustained attention
• Loses items necessary for task completion (pencils, books, tools)
• Is easily distracted by extraneous stimuli
• Is often forgetful in daily activities
Hyperactivity
• Fidgets or squirms, cannot sit still
• Demonstrates inability to remain seated for periods of time
• Runs or climbs excessively
• Has difficulty engaging in quiet leisure activities
• Talks excessively
• Is always on the go as if “driven by a motor”
Impulsivity
• Blurts out answers
• Has difficulty waiting in line or his or her turn
• Interrupts or intrudes on others—butts into conversations or activities
• Acts without thinking, impatient

Source: Adapted from the American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. (Arlington, VA: Author, 2013).

The preceding characteristics or symptoms must be present before the age of 12 and occur in two or more settings (for example, home and school) for at least six months. Children must present at least six symptoms from either the inattention group or the hyperactivity and impulsivity criteria. Adolescents and adults (those over age 17) must evidence five criteria. The characteristics must significantly impact or impede academic, social, or occupational functioning and not result from another mental disorder.

The American Psychiatric Association (2013) definition recognizes three subtypes of ADHD based on the individual's unique profile of symptoms: (1) predominantly inattentive type; (2) predominantly hyperactive-impulsive type; and (3) combined type. The majority of individuals with ADHD exhibit the combined type (Glanzman & Sell, 2019; National Institute of Mental Health, 2016).

A Brief History of the Field

Individuals with attention deficit hyperactivity disorder have been recognized for more than 200 years. The earliest reference to ADHD is attributed to German physician Melchior Weikard who, in 1775, described symptoms of attention disorders in a medical textbook (Barkley & Peters, 2012). In 1902, George Still, a London physician, described a group of youngsters who had average or above-average intelligence yet were disobedient toward adults, acted impulsively, and exhibited inattention along with hyperactivity. He identified these children as manifesting "defective moral conduct." Still speculated that there was a hereditary foundation to their condition and that these children had neurological impairments. In the late 1930s, it was discovered that administering stimulant medication to individuals with characteristics similar to those described by Dr. Still decades earlier had a calming effect on their behavior (Bradley, 1937).

Our early understanding of persons with ADHD was also aided by the work of Heinz Werner and Alfred Strauss, who had worked with children with intellectual disability in Germany. These scientists, having left Germany and immigrated to the United States, observed that some institutionalized children with intellectual disability exhibited behavior patterns of distractibility and hyperactivity not unlike those attributed to persons with brain injury. In a series of experiments comparing the performance of supposedly brain-injured children with intellectual disability to that of youngsters who were intellectually disabled but without brain injury, Werner and Strauss found that children with brain injury were more likely to focus on background objects than on the target stimulus (Strauss & Werner, 1942; Werner & Strauss, 1941). Their "figure-ground" investigations, although methodically flawed, offered evidence of the detrimental effects that distractibility and hyperactivity can have on a child's cognitive performance. Youngsters who displayed high levels of distractibility and hyperactivity were commonly referred to as exhibiting the **Strauss syndrome**.

Strauss syndrome A historical term applied to individuals with intellectual disabilities who exhibit high levels of distractibility and hyperactivity.

The work of Werner and Strauss was replicated several years later by Cruickshank and his colleagues. These investigators (Cruickshank, Bice, & Wallen, 1957) extended the earlier figure-ground research of Werner and Strauss to children with cerebral palsy. Conceptually, this was an important extension. The youngsters in the Werner and Strauss study were assumed to have brain damage, whereas the children in the Cruickshank experiment all had cerebral palsy—a disability characterized by motor impairments resulting from brain damage (see Chapter 14). Additionally, the individuals evaluated by Werner and Strauss were intellectually disabled, but the Cruickshank et al. subjects primarily exhibited normal or near-normal intellectual ability. The finding of hyperactivity and inattention in children without intellectual disability was important because it established a link between attentional difficulties and learning problems (Hallahan, Lloyd, Kauffman, Weiss, & Martinez, 2005).

ADHD affects males more than females.

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Cruickshank extrapolated his findings into educational recommendations for students who today would likely be recognized as exhibiting ADHD. He called for reducing nonessential classroom stimuli, following a highly structured teacher-directed program, and enhancing the stimulus value of

instructional materials (Cruickshank, Bentzen, Ratzeburg, & Tannhauser, 1961). Although these suggestions form the nucleus of many of today's interventions for pupils with ADHD, there is a lack of scientific support for their efficacy (Barkley, 2006, 2015c).

In the 1950s and 1960s, **minimal brain injury** was the label typically used to describe individuals with distractible, impulsive, and/or hyperactive behavior but no discernible neurological abnormalities. Use of this term soon faded because professionals believed that the designation *minimal* depreciated the difficulties experienced by these individuals. Additionally, in many instances, there was insufficient neurological evidence that the brain tissue was actually damaged (Hallahan et al., 2005).

> **minimal brain injury** A once popular term referring to individuals who exhibit behavioral signs of brain injury (such as distractibility or impulsivity) but with no neurological evidence.

The 1960s were known as the "Golden Age of Hyperactivity" (Barkley, 1998). During this era, the label **hyperactive child syndrome** came into vogue, replacing *minimal brain injury* as the term of choice. Professionals favored this description because it focused attention on observable behaviors rather than relying on speculative indicators of brain injury. Eventually, during the 1980s, the *hyperactive child syndrome* label lost its position of prominence as investigators focused their interest on the inattention component of ADHD as the major deficit exhibited by children with ADHD (Hallahan et al., 2005).

> **hyperactive child syndrome** A historical term commonly used to describe youngsters who exhibit impulsivity, inattention, and/or hyperactivity.

Prevalence of Attention Deficit Hyperactivity Disorder

As we noted earlier, ADHD is believed to affect anywhere from 5 to 11 percent of the school-age population or an estimated parent-reported 6.4 million children. Nationally, we find significant variation of ADHD among states. In Nevada, for instance, only 5.6 percent of youth were diagnosed with ADHD while Kentucky reported a prevalence of almost 18.7 percent (Centers for Disease Control and Prevention, 2018b). Despite significant variation in prevalence, the number of individuals with ADHD continues to grow, most likely because of greater awareness on the part of parents and professionals along with improved diagnostic procedures.

Recall that ADHD is not one of the thirteen disability categories recognized by the federal government; these pupils may be served, however, under the label *other health impairments*. During the 2016–2017 school year, almost 931,500 students were identified as having OHI. In the past decade, this category has seen an increase of almost 329,400 children, or an astonishing 55 percent increase (U.S. Department of Education, 2011, 2018). Of course, not all of this gain can be attributed to pupils with ADHD. We suspect, however, that individuals with ADHD are largely responsible for the dramatic growth of this category. In fact, because of this growth, some authorities in special education now consider OHI to be a high-incidence disability.

The research literature generally suggests that ADHD is more readily identified in males than in females. This condition is diagnosed approximately three times more often in boys than in girls (Lerner & Johns, 2015; Mash & Wolfe, 2019; National Resource Center on ADHD, 2019a). These statistics suggest the possibility of a gender bias in identification and diagnosis, that boys may be overidentified and girls underidentified. We believe that this situation exists because ADHD manifests itself differently in males and females. Boys are more likely to exhibit disruptive, hyperactive behavior, thus being more noticeable to teachers. Girls, on the

other hand, are more likely to be withdrawn and exhibit inattention; consequently, they are less likely to be identified (Lerner & Johns, 2015; Vaughn, Bos, & Schumm, 2018; Wicks-Nelson & Israel, 2015). Though gender bias may explain part of the discrepancy between males and females, scientific evidence points to actual biological differences as a primary contributing factor (Barkley, 2006).

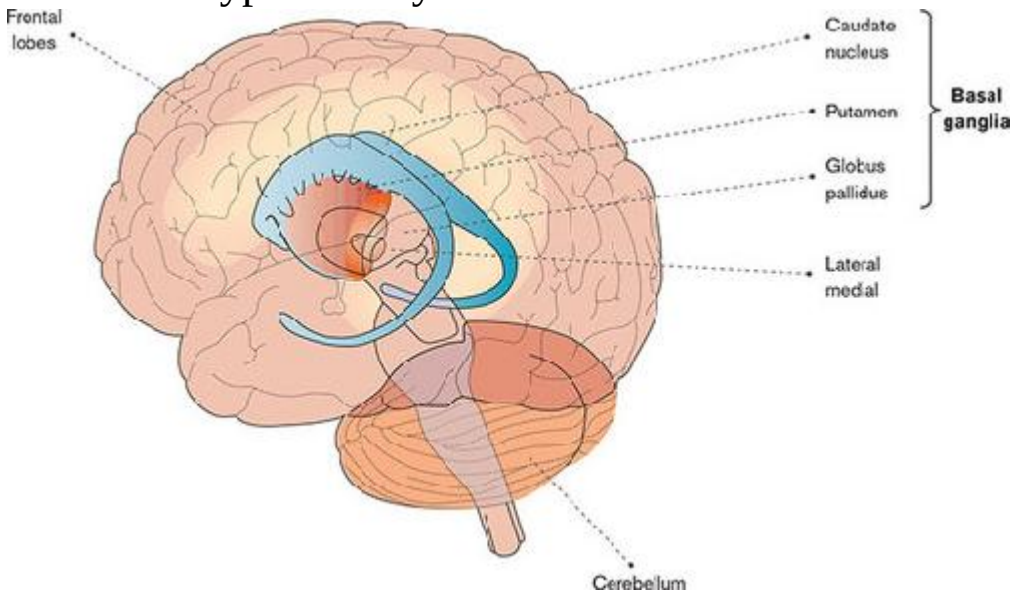
Etiology of Attention Deficit Hyperactivity Disorder

The precise cause of attention deficit hyperactivity disorder is unknown. To date, no single etiological factor has been discovered, although researchers are exploring several possibilities, including neurological foundations, hereditary contributions, and environmental conditions. As scientists learn more about ADHD, it is likely that multiple causes will be identified.

Neurological Dysfunction

Research suggests that neurological dysfunction plays a key role in individuals with ADHD. Anatomical differences and imbalances in brain chemistry are being closely examined as etiological possibilities (Barkley, 2015b; Floet, Scheiner, & Grossman, 2010; Makris, Biederman, Monuteaux, & Seidman, 2009; Mash & Wolfe, 2019; Vaidya & Stollstorff, 2008). In recent years, neuroscientists have been able to advance our understanding of the functioning of the human brain—particularly as it relates to individuals with ADHD. Aided by advances in neuroimaging technology, researchers are using scans of the brain such as positron emission tomography (PET), magnetic resonance imaging (MRI), and functional magnetic resonance imaging (fMRI) procedures, as well as other techniques, to learn about brain structure and activity. Several regions of the brain, specifically the frontal lobes, parts of the basal ganglia, and the cerebellum, appear to consistently exhibit abnormalities in persons with ADHD (Barkley, 2015c; Glanzman & Blum, 2008; Glanzman & Sell, 2019; Nigg & Barkley, 2014). See Figure 8.1 for regions of the brain thought to be affected.

Figure 8.1 Areas of the Brain Suspected of Affecting Attention Deficit Hyperactivity Disorder



The prefrontal and frontal lobes, located in the far forward region of the brain, are responsible for control of **executive functions**—behaviors such as self-regulation, working memory, inner speech, and arousal levels, among other dimensions. The basal ganglia, consisting of several parts (caudate nucleus, putamen, and globus pallidus), are responsible for control and coordination of motor behavior. The cerebellum is also involved in controlling motor behavior (Glanzman & Sell, 2019). Disorganization and inattention, frequently implicated with ADHD, are believed to be associated with impairments in the prefrontal and frontal cortex, whereas hyperactive behavior is thought to be due to abnormalities in the cerebellum and/or basal ganglia (Glanzman & Blum, 2008).

executive functions Internal regulation of one's behavior through control of emotions, inner speech, working memory, arousal levels, and motivation. Considered impaired in individuals with attention deficit hyperactivity disorder.

Scientists are also exploring the possibility of chemical abnormalities in the brain as a reason for ADHD. Although the neurological basis for ADHD is not fully comprehended, a deficiency or imbalance in one or more of the neurotransmitters in the brain is suspected. Simply stated, neurotransmitters are the chemicals that transport electrical impulses (messages) from one brain cell or neuron to another across tiny gaps known as synaptic clefts. Researchers speculate that ADHD results from a deficiency or dysfunction of the neurotransmitter dopamine in the regions of the brain that control activity and attention (Mill et al., 2006; Volkow et al., 2007). Although the precise nature of the defect is not known, investigators believe that the level of dopamine is too low in the frontal cortex, thereby interfering with aspects of executive functioning, and elevated in the basal ganglia region, contributing to impulsive and hyperactive behavior (Castellanos, 1997; Volkow et al., 2009).

Hereditary Factors

There is strong evidence of the role of heredity in contributing to ADHD. Hereditary factors are believed to account for a large percentage of hyperactive-impulsive behavior (Barkley, 2015b; Glanzman & Blum, 2008; Glanzman & Sell, 2019). Approximately one out of three persons with ADHD also has relatives with this condition (Barkley, 2006). Family studies further reveal that a child who has ADHD is much more likely to have parents who exhibit ADHD (Barkley, 2015b; Floet et al., 2010; Hammerness, 2009). Additionally, researchers investigating monozygotic (identical) and dizygotic (fraternal) twins have consistently found a higher concordance of ADHD in identical twins than in fraternal twins, strongly suggesting a genetic link (Barkley, 2015b; Glanzman & Sell, 2019).

Environmental Factors

Various pre-, peri-, and postnatal traumas are also implicated as contributing to ADHD (Barkley, 2015b; Glanzman & Sell, 2019; U.S. Department of Education, 2008a). Examples of environmental factors include maternal smoking, alcohol abuse, illicit drug use, lead poisoning, complications of birth, low birth weight, and prematurity. Many of these factors are suspected of contributing to intellectual disability as well as learning disabilities.

Research (Mash & Wolfe, 2019; National Resource Center on ADHD, 2019b; U.S. Department of Education, 2008a) has discounted many other environmental explanations. Among the popular myths regarding suspected causes of ADHD, but lacking in scientific support, are too much/too little sugar, food additives/coloring, yeast, fluorescent lighting, poor parenting, and too much television.

Characteristics of Individuals With Attention Deficit Hyperactivity Disorder

Characteristics of persons with attention deficit hyperactivity disorder vary considerably. This disorder generally manifests itself early in a child's life. In fact, some precursors have been noted in infancy (Barkley, 2013; Mash & Wolfe, 2019). It would not be uncommon for behaviors associated with ADHD to be exhibited as early as kindergarten or first grade (Vaughn et al., 2018). Though many young children are sometimes inattentive, fidgety, or somewhat impulsive, the developmental features that distinguish ADHD from typical patterns of behavior in young children include the following:

- Chronic over time
- Generally pervasive behaviors across situations
- Deviant from age-based standards
- Increased likelihood of having another difficulty such as a learning or psychiatric disorder (Vaughn et al., 2018, pp. 190–191)

ADHD presents itself in many different ways. In some students, inattention is the primary deficit. These pupils have difficulty concentrating on a specific task; they are forgetful and easily distracted. Students who exhibit hyperactive-impulsive disorder are constantly in motion; racing from one activity to another, they have difficulty sitting still or playing quietly. Individuals with a combined type of ADHD manifest aspects of both types. Review Table 8.1 (page 235) for examples of other characteristics typical of students with ADHD. (See the accompanying First Person feature.)

Behavioral Inhibition and Executive Functioning

Contemporary thinking suggests that problems with **behavioral inhibition** are the primary characteristic of persons with ADHD (Barkley, 2006). Behavioral inhibition consists of three elements that affect the ability to (1) withhold a planned response, (2) interrupt a response that has already been initiated, and (3) protect an ongoing activity from competing or distracting stimuli (Barkley, 2006; Vaughn et al., 2018; Weyandt & Gudmundsdottir, 2015). Problems with behavioral inhibition can lead to a variety of difficulties in the classroom. According to Hallahan et al. (2005), students may have trouble, for example, waiting their turn, resisting distractions, delaying immediate gratification, or interrupting a faulty line of thinking.

> **behavioral inhibition** A characteristic common in persons with attention deficit hyperactivity disorder; impacts executive functions. Typically affects the ability to (1) withhold a planned response, (2) interrupt an ongoing response, and (3) protect an ongoing response from distractions.

Researchers (Barkley, 2006; Glanzman & Sell, 2019; Weyandt, 2009) note that individuals with ADHD also often have difficulty with executive functions. Recall from our earlier discussion of the etiology of ADHD that executive functions involve a number of self-directed behaviors, such as self-regulation, working memory, inner speech, and arousal levels, among other dimensions. Impaired executive functioning in children with ADHD affects a wide range of performance. Difficulty following rules or directions, forgetfulness, and a lack of emotional control are just a few of the ways that students are affected (Mash & Wolfe, 2019).

Social and Emotional Issues

Social problems and emotional difficulties are not uncommon among individuals with ADHD. Children with ADHD often experience difficulty making friends and maintaining appropriate relationships with peers (Mash & Wolfe, 2019; Wicks-Nelson & Israel, 2015). Diminished self-confidence, low self-esteem, and feelings of social isolation/rejection are fairly typical in some individuals with ADHD (Friend & Bursuck, 2019). In some instances, in their attempts to be popular and gain friends, students with ADHD, because of their impaired impulse control, actually wind up aggravating peers and further ostracizing themselves from the very individuals with whom they are attempting to establish relationships.

Persons with ADHD may manifest a wide variety of emotional difficulties. Some individuals may exhibit aggression and antisocial behaviors; in others, withdrawn behavior, depression, and anxiety disorders are typical (Glanzman & Sell, 2019; Mash & Wolfe, 2019; National Institute of Mental Health, 2016). A majority of parents of children with recognized emotional disorders report that their child also exhibits ADHD (U.S. Department of Education, 2008b).

First Person: Helen Good Things Come in Small Packages

Like any expectant first-time mom, I was thrilled at the thought of becoming a parent. My joy, however, quickly turned to fear when I went into premature labor. My concerns were multiplied when I developed pulmonary edema and could barely breathe. The only thing that kept me sane was the constant, rhythmic heartbeat of my baby girl coming through loud and clear on the fetal monitor. My family knew how serious my condition was, but I was in a total fog—completely unaware that the doctor had addressed the possibility of my husband having to choose between my life and that of our unborn child. Six days after entering the hospital, and four days after our life-threatening ordeal, our daughter Helen was born.

Five weeks premature and weighing only 4 pounds, 12 ounces, she made a feisty entrance into the world. My husband and I were able to take her home just two days later. With the

exception of developing jaundice, she had no health problems whatsoever. Developmental milestones such as rolling over, sitting alone, and pulling up were reached well within normal limits. She even took her first step on her first birthday. Although she was tiny, we had no concerns for her physical development.

Helen's intellectual and emotional growth initially appeared right on track as well; sometimes she was even ahead of the norm. She talked at a very young age. She used simple but complete sentences by the time she was 18 months old and could carry on a decent conversation by age 2.

When the time came for her to start kindergarten, we had some reservations about her beginning school; but at the time, her starting public school was the best option for our family. Helen was one of the youngest children in her class and was definitely the smallest. Our first hint of trouble came during this year. She struggled with reading and math, but her teacher had no worries about her moving on to first grade. She saw no problem that a little maturity couldn't fix.

Helen made great strides in first grade but still struggled. Approximately one month before the year was over, the light seemed to turn on—she got it! Her teacher lamented the fact that she could not keep her another six weeks. Much as in kindergarten, my husband and I discussed the possibility of either having her tested for a learning disability or repeating the grade, but her teacher believed she would be fine.

Second grade was a repeat of first. No problems at the beginning of the school year, then increasing struggles as the year progressed, and of course the "eureka" moment near the end of the year. As in both kindergarten and first grade, Helen's teacher strongly recommended against holding her back, citing the social stigma of repeating while crediting many of her problems to her immaturity. Yet again, a referral for special education was discouraged.

It was not until third grade that we had a major turning point. The work was becoming more difficult, and her frustration was growing. The final straw came one evening when, after a long and confusing homework session, Helen put her head down on the table and began to cry. When I asked her what was wrong, she began to sob uncontrollably, then threw herself into my arms and pleaded with me, "Mommy, why can't I learn like everybody else?" I honestly don't remember what I told her. All I could really think of was getting to school the next day to talk with her teacher. Thus began the long saga of figuring out exactly where the problems were and how we would address them.

After multiple tests to determine her eligibility for special education, all the assessments indicated "normal" results. But thank goodness the principal, the counselor, and her teacher saw past the scores and into the eyes and heart of a little girl who was quickly losing any belief in herself. We hired a tutor, we made modifications in the classroom, and Helen took more diagnostic tests—still nothing that would qualify her for services under special education. About two thirds of the way through the school year, Helen's pediatrician diagnosed her with attention deficit hyperactivity disorder (ADHD); thus, she was eligible to receive a special education under the label *other health impairments*. She began taking Ritalin, and we saw a gradual improvement in her schoolwork.

The improvement we saw did not come without a price. Helen was very angry with her father and me when she realized why she was taking medication every day. She was truly terrified of not having any friends if they found out she had ADHD.

About halfway through fourth grade, we decided to try the extended-release form of her medication. We did this in hopes that she would not feel as though she was being "watched" by her classmates when she had to go take medicine in the middle of the day, and also to help with her homework in the late afternoon and early evening. Unfortunately, coming off the medication in the evening turned into a "crash and burn" event most nights. Helen even began to have suicidal ideation and one night did not eat dinner because, as she put it, she "could control herself" (in reference to living or dying). We of course changed medications, and the emotional outbursts tapered off. The remainder of fourth and fifth grade was an up-and-down roller coaster, ending with yet another twist in the ride. Helen's younger sister was identified as gifted, thus creating a new set of struggles with self-confidence and self-esteem.

Currently, as a seventh grader (but the size of a third grader), she is developing new friends and her own sense of style and self. Academics continue to be a daily struggle. She tends to get lost in lengthy operations and has a great deal of trouble focusing attention and identifying pertinent information. Helen has a tremendous problem with spelling and grammar. She also has trouble transferring and assimilating knowledge from one situation to another. Helen is very rules oriented and desperately needs structure, but she cannot provide that structure for herself. She tends to vacillate from overly focused to airhead. At times, Helen appears almost belligerent—she is unable to "shift gears" as circumstances change. We frequently see this with her schoolwork. She continues to make the same mistakes over and over again because of her unwillingness (inability) to adopt a different strategy—because, in her eyes, her way is the correct way.

Her father and I continue to try to instill the idea of effort being more important than grades, but she holds herself to a higher standard. I am not sure what the next eight to ten years hold. Helen is a very hard worker, but at this point in time a four-year college degree may or may not be in her future. Our biggest concern is that she find something she enjoys and that she can excel in. Our goal is not for her to make the honor roll or be rich, but for Helen to be a self-confident and fulfilled young woman.

—Anonymous

Comorbidity

Students with ADHD frequently have other academic and behavioral difficulties. Learning disabilities, for example, are very common among individuals with ADHD (DuPaul, Gormley, & Laracy, 2013; DuPaul & Langberg, 2015; Glanzman & Sell, 2019). In an interesting distinction, Silver (1990) observes that a learning disability affects the brain's ability to learn, whereas ADHD interferes with a person's availability to learn. On the other hand, pupils who are gifted and talented (see Chapter 15) are also frequently recognized as having ADHD (Assouline & Whiteman, 2011; Clark, 2013; Rimm, Siegle, & Davis, 2018). Some of these students, in fact, exhibit high energy levels, intense curiosity, and an excessive enthusiasm for learning. Additionally, researchers have found that children with ADHD have coexisting psychiatric disorders at a much higher rate than their peers without ADHD (Atkins & Mariñez-Lora, 2008; Kauffman & Landrum, 2018; Pliszka, 2015; Stein & Shin, 2008). Unfortunately, at the present time, investigators are unable to fully explain the reasons for the high degree of overlap between ADHD and other impairments.

Identifying pupils with ADHD is not an easy task.

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Assessment of Attention Deficit Hyperactivity Disorder

Identifying pupils with attention deficit hyperactivity disorder is not always easy, although many teachers will say “you know it when you see it.” Valid and reliable assessment of ADHD is difficult; there is no single, definitive medical or psychological test that clearly distinguishes these children from others. Identifying a child as having ADHD is a multidimensional process. Typical strategies for assessing this condition involve direct observation of the youngster and the use of behavior rating scales and other types of observation instruments completed by parents, teachers, and other professionals. Teachers, in particular, represent a valuable source of information about the child as they are involved with this student in a variety of academic and social situations.

Assessment and diagnosis of ADHD is a multifaceted endeavor involving the gathering of specific medical, behavioral, and educational data (U.S. Department of Education, 2008a). The intent of these efforts is to glean as much useful information as possible in order to accurately assess the child’s condition.

Medical Evaluation

Generally speaking, a medical evaluation is designed to rule out medical conditions that might be contributing to the pupil's hyperactivity and/or inattention. Examples of these conditions include epilepsy, thyroid problems, and brain tumors (Hallahan et al., 2005). Knowledge of a child's health status can also assist the health care professional in deciding which type of medication to prescribe, should that be a treatment option.

Medical professionals confronted with making a diagnosis of ADHD often utilize guidelines disseminated by the American Academy of Pediatrics (2011). These guidelines, which vary by the age of the child, offer specific direction and guidance to the doctor for the diagnosis as well as treatment of ADHD.

An interesting phenomenon is sometimes observed during the clinical interview. In novel and structured situations, such as a physician's office, it is not unusual for the child to be symptom-free of characteristics typically associated with ADHD—much to the bewilderment and dismay of his or her parents or caregivers. This phenomenon, recognized many years ago, is commonly referred to as the **doctor's office effect** (Cantwell, 1979).

doctor's office effect The absence of symptoms of attention deficit hyperactivity disorder when the individual is evaluated in a structured environment such as a physician's office.

Behavioral/Educational Evaluation

Rating scales provide another important source of information about the student suspected of having ADHD. These scales assess the presence of ADHD symptoms and offer an objective way of quantifying the severity of the behaviors (Smith et al., 2016). Evaluation of the child's performance in the classroom and his or her behavior at home will assist professionals in establishing a complete picture of the pupil's condition and ensure that the data are as accurate as possible. Although behavioral rating scales can accurately distinguish between children with and without ADHD (U.S. Department of Education, 2008a), their usefulness and accuracy are largely dependent on raters' knowledge of the individual and their perception of his or her behavior. Despite the standardized nature of these instruments, bias is a real concern.

One example of a reliable and valid assessment measure is the ADHD Rating Scale–5 (DuPaul, Power, Anastopoulos, & Reid, 2016), which assesses both home and classroom behaviors of children as well as adolescents. The home version is available in English and Spanish. As with other rating indices, informants rate an individual's performance using a Likert scale (*never or rarely*, *sometimes*, *often*, or *very often*). The Conners 3 (Conners, 2008) is another representative example of a commonly used standardized rating scale. This instrument allows the evaluator to rate a variety of ADHD characteristics on the basis of how closely the statement portrays the student. It has been updated with a scoring option that reflects the diagnostic criteria found in the DSM-5. While some assessment instruments primarily assess symptoms of ADHD, other scales are multidimensional. Table 8.2 shows sample test items from one such measure. This instrument, which is typically completed by teachers, evaluates the impact of ADHD on cognitive processes, social/emotional behaviors, and impulsivity/hyperactivity.

Table 8.2 Sample Test Items From the "Strengths and Limitations Inventory: School Version"

Table 8.2 Sample Test Items From the "Strengths and Limitations Inventory: School Version"

		Never Observed	Sometimes Observed	Often Observed	Very Often Observed
Attention/Impulsivity/Hyperactivity	Exhibits excessive nonpurposeful movement (can't sit still, stay in seat).				
	Does not stay on task for appropriate periods of time.				
	Verbally or physically interrupts conversations or activities.				
	Does not pay attention to most important stimuli.				

		Never Observed	Sometimes Observed	Often Observed	Very Often Observed
Reasoning/Processing	Makes poor decisions.				
	Makes frequent errors.				
	Has difficulty getting started.				
Memory	Has difficulty repeating information recently heard.				
	Has difficulty following multiple directions.				
	Memory deficits impact daily activities.				
Executive Function	Has difficulty planning/organizing activities.				
	Has difficulty attending to several stimuli at once.				
	Has difficulty monitoring own performance throughout activity (self-monitoring).				
	Has difficulty independently adjusting behavior (self-regulation).				
Interpersonal Skills	Has difficulty accepting				

		Never Observed	Sometimes Observed	Often Observed	Very Often Observed
	constructive criticism.				
	Exhibits signs of poor self-confidence.				
Emotional Maturity	Shows inappropriate emotion for situation.				
	Displays temper outbursts.				
	Does not follow classroom or workplace “rules.”				

Source: C. Dowdy, J. Patton, T. Smith, and E. Polloway, *Attention Deficit/Hyperactivity Disorder in the Classroom* (Austin, TX: Pro-Ed, 1998), pp. 112–113.

Educational Considerations

How does a teacher assist the student who exhibits attention deficit hyperactivity disorder? With slightly more than 6 million school-age children exhibiting this disorder (Danielson, Bitsko, Ghandour, Holbrook, Kogan, & Blumberg, 2018), this is an important issue for many classroom teachers and parents. Many pupils with ADHD experience significant difficulty in school, where attention and impulse control are prerequisites for success. In fact, academic underachievement is one of the most salient features of this disability. Many students with ADHD are at risk for chronic school failure (DuPaul & Langberg, 2015; Wicks-Nelson & Israel, 2015).

Most children with ADHD respond to a structured and predictable learning environment where rules and expectations are clearly stated and understood, consequences are predetermined, and reinforcement is delivered immediately (Center for Parent Information and Resources, 2017). Of course, environmental modifications alone are not the key to success. Educational researchers believe that **multimodal interventions**, or concurrent treatments, are generally more effective for individuals with ADHD than any one particular strategy (Lerner & Johns, 2015; Rooney, 2017; Smith & Shapiro, 2015). Because ADHD is a multifaceted disorder, comprehensive, intensive, and individualized interventions are often needed (Rooney, 2017). Instructional adaptations, behavioral interventions, home–school communication, medication, and counseling represent some of the available intervention options for individuals with ADHD. We have chosen to highlight four of these treatment approaches, including a concluding examination of the role of medication in the treatment of ADHD. But first we look at the issue of the educational setting that is most appropriate for pupils with ADHD.

multimodal interventions The use of concurrent treatment approaches with students who exhibit attention deficit hyperactivity disorder.

Where Are Students With Attention Deficit Hyperactivity Disorder Educated?

Because the federal government does not recognize attention deficit hyperactivity disorder as a discrete disability, information usually provided by the U.S. Department of Education on the educational settings in which these pupils are served is unavailable. Individuals with ADHD who qualify for a special education are eligible for services under the category *other health impairments*. It is not possible, however, to distinguish which students in this group have ADHD.

Given our current educational climate of emphasizing inclusionary placement for individuals with disabilities, it is safe to assume that large numbers of students with ADHD receive services in the general education classroom. Mash and Wolfe (2019) as well as Pfiffner and DuPaul (2015) in addition to Smith et al. (2016) offer support for this assumption, believing that the majority of students with ADHD are appropriately served in the general education classroom. Sometimes this placement involves general education teachers and special educators working together as a collaborative team. Of course, the most appropriate setting for a student with ADHD must be decided on a case-by-case basis.

Recall that not all students with ADHD qualify for special education services under IDEA (PL 108–446). These individuals will most likely receive accommodations in the general education classroom through the protections afforded them under Section 504 of PL 93–112. See the accompanying Strategies for Effective Teaching and Learning feature for a list of accommodations appropriate for designing 504 plans and individualized education programs (IEPs).

Teachers who are successful in working with children with ADHD, regardless of the educational setting in which they are served, typically incorporate a three-pronged strategy. They begin by identifying the unique needs of the child. For example, the teacher determines how, when, and

why the pupil is inattentive, impulsive, and hyperactive. The teacher then selects different educational practices associated with academic instruction, behavioral interventions, and classroom accommodations that are appropriate to meet the child's needs. Finally, the teacher combines these practices into an IEP or other individualized plan and integrates this program with educational activities provided to other students. The three steps, which summarize this strategy, are as follows:

- Evaluate the child's individual needs and strengths.
- Select appropriate instructional practices.
- Integrate practices within the IEP if the student is receiving a special education.

"Because no two children with ADHD are alike, it is important to keep in mind that no single educational program, practice, or setting will be best for all children" (U.S. Department of Education, 2008b, p. 4).

We will now examine several different treatment approaches typically used to meet the unique needs of students with ADHD.

Functional Behavioral Assessment

Behavioral strategies are an effective intervention technique for students with ADHD. One example of this approach is the use of **functional behavioral assessment**. A functional behavioral assessment focuses on determining the purpose or function that a particular behavior serves (Alberto & Troutman, 2017; Pfiffner & DuPaul, 2015). This process generally involves the following procedures:

> **functional behavioral assessment** A behavioral strategy that seeks to determine the purpose or function that a particular behavior serves—what is occasioning and maintaining the behavior.

- Defining the target behavior
- Identifying antecedents and consequences of the behavior typically via direct observation
- Analyzing what events are occasioning or maintaining the behavior
- Manipulating antecedents and consequences

Once this analysis is completed, the goal is to construct interventions that modify the antecedent or triggering behaviors and/or the consequences that are reinforcing and maintaining the undesirable performances.

Strategies for Effective Teaching and Learning
Accommodations to Help Students With Attention Deficit Hyperactivity Disorder

Children and youth with attention deficit hyperactivity disorder (ADHD) often have serious problems in school. Inattention, impulsiveness, hyperactivity, disorganization, and other difficulties can lead to unfinished assignments, careless errors, and behavior that is disruptive to oneself and others. Through the implementation of relatively simple and straightforward accommodations to the classroom environment or teaching style, teachers can adapt to the strengths and weaknesses of students with ADHD. Small changes in how a teacher approaches the student with ADHD or in what the teacher expects can turn a losing year into a winning one for the child. Examples of accommodations that teachers

can make to adapt to the needs of students with ADHD are grouped below according to areas of difficulty.

Inattention

- Seat student in quiet area.
- Require fewer correct responses for grade.
- Seat student near good role model.
- Reduce amount of homework.
- Seat student near “study buddy.”
- Instruct student in self-monitoring using cueing.
- Increase distance between desks.
- Pair written instructions with oral instructions.
- Allow extra time to complete assigned work.
- Provide peer assistance in note taking.
- Shorten assignments or work periods to coincide with span of attention; use timer.
- Give clear, concise instructions.
- Break long assignments into smaller parts so student can see end of work.
- Seek to involve student in lesson presentation.
- Assist student in setting short-term goals.
- Cue student to stay on task (i.e., private signal).
- Give assignments one at a time to avoid work overload.

Impulsiveness

- Ignore minor inappropriate behavior.
- Acknowledge positive behavior of nearby students.
- Increase immediacy of rewards and consequences.
- Seat student near role model or near teacher.
- Use time-out procedure for misbehavior.
- Set up behavior contract.
- Supervise closely during transition times.
- Instruct student in self-monitoring of behavior (i.e., hand raising, calling out).
- Use “prudent” reprimands for misbehavior (i.e., avoid lecturing or criticism).
- Call on only when hand is raised in appropriate manner.
- Attend to positive behavior with compliments, etc.
- Praise when hand raised to answer question.

Motor Activity

- Allow student to stand at times while working.
- Supervise closely during transition times.
- Provide opportunity for “seat breaks” (run errands, etc.).
- Remind student to check over work product if performance is rushed and careless.
- Provide short breaks between assignments.
- Give extra time to complete tasks (especially for students with slow motor tempo).

Academic Skills

- If reading is weak: Provide additional reading time; use “previewing” strategies; select text with less on a page; shorten amount of required reading; avoid oral reading.
- If written language is weak: Accept nonwritten forms for reports (i.e., displays, oral reports); accept use of typewriter, word processor, tape recorder; do not assign large quantity of written work; test with multiple-choice or fill-in questions.
- If oral expression is weak: Accept all oral responses; substitute a display for an oral
- report; encourage student to tell about new ideas or experiences; pick topics easy for student to talk about.
- If math is weak: Allow use of calculator; use graph paper to space numbers; provide additional math time; provide immediate corrective feedback and instruction via modeling of the correct computational procedure.

Organization Planning

- Ask for parental help in encouraging organization.
- Allow student to have extra set of books at home.
- Provide organization rules.
- Give assignments one at a time.
- Encourage student to have notebook with dividers and folders for work.
- Assist student in setting short-term goals.
- Provide student with homework assignment book.
- Do not penalize for poor handwriting if visual–motor defects are present.
- Supervise writing down of homework assignments.
- Encourage learning of keyboarding skills.
- Send daily/weekly progress reports home.
- Allow student to tape-record assignments or homework.
- Regularly check desk and notebook for neatness; encourage neatness rather than penalize sloppiness.

Compliance

- Praise compliant behavior.
- Supervise student closely during transition times.
- Provide immediate feedback.
- Seat student near teacher.
- Ignore minor misbehavior.
- Set up behavior contract.
- Use teacher attention to reinforce positive behavior.
- Implement classroom behavior management system.
- Use “prudent” reprimands for misbehavior (i.e., avoid lecturing or criticism).
- Instruct student in self-monitoring of behavior.
- Acknowledge positive behavior of nearby students.

Mood

- Provide reassurance and encouragement.
- Make time to talk alone with student.
- Frequently compliment positive behavior and work product.
- Encourage social interactions with classmates if student is withdrawn or excessively shy.
- Speak softly in nonthreatening manner if student shows nervousness.
- Reinforce frequently when signs of frustration are noticed.
- Review instructions when giving new assignments to make sure student comprehends directions.
- Look for signs of stress buildup and provide encouragement or reduced workload to alleviate pressure and avoid temper outburst.
- Look for opportunities for student to display leadership role in class.
- Spend more time talking to students who seem pent up or display anger easily.
- Conference frequently with parents to learn about student's interests and achievements outside of school.
- Provide brief training in anger control: Encourage student to walk away; use calming strategies; tell nearby adult if getting angry.
- Send positive notes home.

Socialization

- Praise appropriate behavior.
- Encourage cooperative learning tasks with other students.
- Monitor social interactions.
- Provide small-group social skills training.
- Set up social behavior goals with student and implement a reward program.
- Praise student frequently.
- Prompt appropriate social behavior either verbally or with private signal.
- Assign special responsibilities to student in presence of peer group so others observe student in a positive light.

—Harvey C. Parker

Source: A.D.D. Warehouse, 304 Northwest 70th Avenue, Plantation, FL 33317; (800) 233-9273. Available online at http://www.addwarehouse.com/shopsite_sc/store/html/article4.htm

Self-Regulation/Monitoring

Self-regulation is a behavioral self-control strategy drawn from the early work of Glynn, Thomas, and Shee (1973) on self-monitoring. It is a highly effective intervention strategy for students with ADHD (DuPaul & Weyandt, 2006; Graham-Day, Gardner, & Hsin, 2010; Rooney, 2017; Weiss & Illes, 2006). “Self-regulation requires students to stop, think about what they are doing, compare their behavior to a criterion, record the results of their comparison, and receive reinforcement for their behavior if it meets the criterion” (Johnson & Johnson, 1999, p. 6). Self-monitoring includes all of the preceding steps with the exception of dispensing reinforcement. Self-regulation techniques can be used across all grade levels and are appropriate for children in both special education and general education classrooms.

self-regulation The ability of an individual to manage or govern his or her own behavior.

Self-regulation is a common intervention strategy used with students with ADHD.

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Self-regulatory strategies are frequently used to modify common classroom behaviors such as working independently, staying on task, completing assignments, or remaining at one’s desk. These strategies, which should focus on a positive target behavior, teach pupils to monitor their own

behavior, engage in self-reinforcement, and direct their own strategic learning (Alberto & Troutman, 2017; Johnson & Johnson, 1999; Smith et al., 2016). After the teacher determines the student's current level of performance, the pupil executes the following steps:

1. **Self-observation**—looking at one's own behavior, given a predetermined criterion
2. **Self-assessment**—deciding if the behavior has occurred, through some form of self-questioning activity
3. **Self-recording**—recording the decision made during self-assessment on a private recording form
4. **Self-determination of reinforcement**—setting a criterion for success, and selecting a reinforcer from a menu of reinforcers
5. **Self-administration of reinforcement**—administering a reinforcer to oneself

Before allowing students to follow these steps independently, it is recommended that teachers teach self-reinforcement strategies by first demonstrating the necessary steps through modeling or guided practice. Self-monitoring of behavior has been shown to increase academic productivity and on-task behavior of students in both elementary and secondary classrooms (DuPaul & Weyandt, 2006; Hallahan et al., 2005; Weyandt, 2007).

Home–School Collaboration

Home–school collaboration is essential for all pupils, but especially for those with ADHD; it is an important ingredient for promoting their success at school (Jones & Teach, 2006; Pfiffner & DuPaul, 2015). As illustrated in Figure 8.2, this partnership must be "ongoing, reciprocal, mutually respectful, and student centered" (Bos, Nahmias, & Urban, 1999, p. 4).

Parents have played a key role in their children's education ever since the enactment of PL 94–142 in 1975. Their involvement has recently been expanded, however, as part of IDEA 2004 (PL 108–446), and input from parents is now solicited during prereferral and eligibility meetings as well as when planning positive behavioral interventions. Bos et al. (1999) note that home–school collaboration can be used in many areas of school life, but it is especially appropriate for students with ADHD when parents and teachers communicate about monitoring medication effects, completing homework assignments, establishing goals and rewards, assessing intervention effectiveness, and developing behavior management plans. The communication techniques themselves can range from simple (daily checklists or rating scales) to more sophisticated strategies, such as weekly journals, emails, or traveling notebooks (communication folders). What is important is not the method used but that consistent and meaningful communication occurs. Parents and teachers should use whatever strategies work best for them.

Home -school collaboration is essential for all pupils, but especially for those with ADHD.

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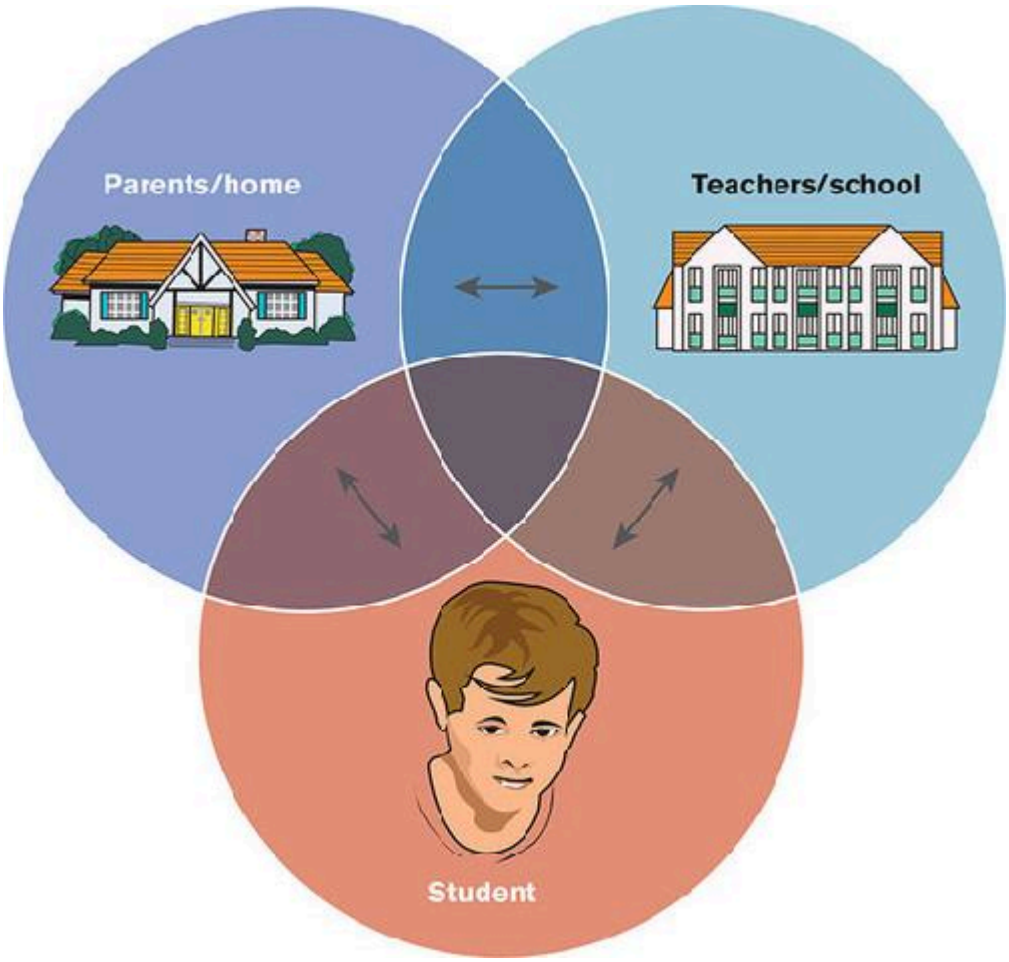
Figure 8.2 Components of Effective Home–School Collaboration



Source: From “Targeting Home–School Collaboration for Students With ADHD” by C. Bos, M. Nahmias, and M. Urban, *Teaching Exceptional Children*, *31*(6), p. 4. Copyright © 1999 by the Council for Exceptional Children. Reprinted with permission.

Instructional Modification

As noted earlier, environmental modifications are often crucial if the student with ADHD is to succeed in the classroom. Instructional adaptations coupled with modifications of the learning environment are powerful tools that can help the pupil sustain attention while cultivating a climate that fosters learning and encourages the child to control his or her behavior. We fully agree with Mash and Wolfe (2019) that

> many strategies for instructing children with ADHD are simply good teaching methods. Letting students know what is expected of them, using visual aids, providing cues for expected behavior, and giving written as well as oral instructions all help children focus their attention and remember important points. In addition, children with ADHD may require other accommodations to help them learn. (p. 261)

As noted earlier in this chapter, even if a student is ineligible for a special education, general educators are required, under Section 504 of PL 93–112, to accommodate individual differences and learning styles of children who exhibit an impairment (such as ADHD) that substantially limits a major life activity such as learning. Lerner and Lowenthal (1993) offer the following suggestions designed to benefit the individual with ADHD regardless of his or her educational placement. These instructional recommendations are still appropriate in twenty-first-century classrooms.

1. Place the youngster in the least distracting location in the class. This may be in front of the class, away from doors, windows, air conditioners, heaters, and high-traffic areas. It may be necessary for the child to face a blank wall or be in a study carrel to enable him or her to focus attention.
2. Surround the student with good role models, preferably peers that the child views as significant others. Encourage peer tutoring and

cooperative learning.

3. Maintain a low pupil–teacher ratio whenever possible through the use of aides and volunteers.
4. Avoid unnecessary changes in schedules and monitor transitions because the child with ADHD often has difficulty coping with changes. When unavoidable disruptions do occur, prepare the student as much as possible by explaining the situation and what behaviors are appropriate.
5. Maintain eye contact with the student when giving verbal instructions. Make directions clear, concise, and simple. Repeat instructions as needed in a calm voice.
6. Combine visual and tactile cues with verbal instructions since, generally, multiple modalities of instruction will be more effective in maintaining attention and increasing learning.
7. Make lists that help the student organize tasks. Have the student check them off when he or she is finished. Students should complete study guides when listening to presentations.
8. Adapt worksheets so that there is less material on each page.
9. Break assignments into small chunks. Provide immediate feedback on each assignment. Allow extra time if needed for the student to finish the assignment.
10. Ensure that the student has recorded homework assignments each day before leaving school. If necessary, set up a home–school program in which the parents help the child organize and complete the homework.
11. If the child has difficulty staying in one place at school, alternate sitting with standing and activities that require moving around during the day.
12. Provide activities that require active participation, such as talking through problems or acting out the steps.
13. Use learning aids such as computers, calculators, tape recorders, and programmed learning materials. They help to structure learning and maintain interest and motivation.
14. Provide the student opportunities to demonstrate strengths at school. Set up times in which the student can assist peers. (pp. 4–5)

Making Inclusion Work
Individuals With Attention Deficit Hyperactivity Disorder

I recall seeing a cartoon once where a student with attention deficit hyperactivity disorder (ADHD) was portrayed as a tornado sitting in a desk (something a student with ADHD can possibly relate to). A tornado is something that gets a lot of attention, but all of it is negative. As I enter my tenth year of teaching, I reflect back on those students I worked with and the varying degrees of ADHD I encountered. I clearly remember one particular student and parent. This child was new to our school, but not new to special education. His mother finally admitted in December that she had no insurance but wanted desperately to fill her son's prescription because by this time he was constantly in trouble. After we helped her locate free medical insurance, she quickly took him to his pediatrician.

Medication helped him control his impulsiveness, and he made more than a year's progress in the few short months left in school that year. The child didn't return the following year, and I've always wondered how he was doing. Then there are the parents that I've known who have ADHD themselves. Despite facing the same issues, many of these parents still did not know how to help their child. I also recall interacting with my colleagues, wondering how some teachers can be so understanding while others are absolutely oblivious to the effects that this disability has on the educational performance of their pupils. I realized then that it was going to be my job, as a special educator, to educate my fellow teachers as well as the students.

Inclusive Education Experience

Including students with ADHD in the general education classroom is just the right thing to do. A pull-out or resource room setting typically does not benefit these students. Best practices, accommodations, and a great deal of patience are all that is usually required. Depending on the severity of the disorder, behavioral interventions may be necessary, but these too are best done in the least restrictive environment. At the same time, the least restrictive environment can become overly restrictive if traditional self-control, self-direction, and adherence to inflexible classroom rules are required of the learner with ADHD. The extent to which the student's needs are matched to the teacher's expectations is important to success; and the extent to which home and school expectations mirror each other builds on that positive inclusive experience. Typically, you are not going to change the child to fit the learning environment; rather, the classroom needs to accommodate the learner's unique needs and learning style.

Strategies for the Inclusive Classroom

Most classroom strategies that can be used for pupils with ADHD are good for all students. Having an example of an organized notebook with all the required assignments in it, for instance, is a great way to give students a means of organizing themselves. Assigning a dependable peer to help with this activity will ensure that the student with ADHD stays organized while also giving him or her ownership of the task. That same notebook can help children who were absent be sure they get everything they missed.

Another classroom practice that may benefit all students is repeating instructions or assignments several times, simplifying instructions, or giving directions in multiple ways.

Most kids today love technology; therefore, teachers should incorporate what the children love. Today's technologies such as iPods, audiobooks, and computers that give constant/instant stimulation or feedback are great ways for teachers to supplement their instruction.

Successful Collaboration

To make collaboration a success, it is important to appreciate the challenges frequently encountered by the general educator who works with pupils with ADHD. Co-teaching is but one example of a collaborative activity that may provide the general education teacher with the opportunity to focus on the particular needs of the student with ADHD while the special educator instructs the entire class. On the other hand, the special educator may work with a small group of children while the general education teacher delivers whole-group instruction. Cooperative learning groups of specifically chosen peers is another way of engaging students with ADHD. The keys to a successful collaborative relationship are listening, acknowledging the teacher's concerns, meeting the teacher's needs as well as those of the students, and doing all of this in a timely manner.

Working With Parents and Families

A close relationship with the parents and families of students with ADHD is vital to the child's success at school. Recently I emailed a parent about extreme changes in her son's behavior. The classroom teacher first brought it to my attention, and the paraprofessional who works with him noticed the changes as well. I also observed the changes, but working with this student for only fifteen minutes each day I failed to put it all together. I simply informed his mother that we had seen some changes and wanted to address them with her before it began to affect his progress and ultimately his grade. Later that same day she stopped by my classroom and said she had brought him his medicine. It seems that she had simply stopped giving her son his medication and wanted to see if we would notice any changes. While medication should not be the first line of defense in dealing with ADHD, for many students medication is a necessity. Some parents, however, do not believe in the benefits of medication for their child. It is important for teachers to realize that this is a very personal decision, and they must respect the wishes of the parent. Parents who feel that their voice is not being heard are more likely to become defensive and uncooperative when problems do arise.

Follow-through and consistency of routines across environments are crucial for the child with ADHD. At home there should be a schedule similar to the one used at school. There should be consequences and rewards that mirror what is done in the classroom. A clear understanding of expectations that are consistent across environments will often enhance success.

Homework is often a huge source of frustration for both parents and the child. Teachers can usually suggest ways to minimize frustration. For example, it may not always be necessary to complete each and every homework problem if the student is able to demonstrate an understanding of the concept. Breaking homework into manageable chunks or giving due dates for assignments early will allow parents additional time to help their child and possibly keep the student from feeling overwhelmed. Sometimes students are good at certain parts of an assignment, and these can possibly be omitted. A student, for instance, who is great at computation facts but weak at deciphering word problems may be required only to determine the equation but not expected to work it out. The bottom line is two-way communication. It is important that parents and teachers view each other as a team.

Advice for Making Inclusion Work

Special educators often assist the general education teacher as much as they do the student. Being available when assistance is required and serving as a source of effective instructional and behavioral interventions are very important for making inclusion work. I often send my colleagues useful articles and short weekly emails with instructional suggestions. I also remind them that ADHD is real and that the child is not trying to drive them crazy.

Students with ADHD lack the ability to focus and are distracted by anything overly stimulating, so finding ways to make learning fun is a key component of success. In an inclusive setting, the special educator has to help the general education teacher find ways to make the learning environment less stimulating and his or her teaching more stimulating. Again, this works for *all* students, not just the child with ADHD. Be sure that you facilitate open lines of communication between home and school. View inclusion as a partnership among the general education teacher, the special educator, and the family for the benefit of all, but especially the student with ADHD.

—*Lisa Cranford* Instructional Support Teacher National Board Certified Teacher 2009 Alabama CEC Special Education Teacher of the Year Hoover (Alabama) City Schools

Medication

Many professionals believe that medication, particularly **psychostimulants**, can play an important role in the treatment of ADHD. It is our opinion that the use of medication should always be in conjunction with educational and behavioral interventions; medication represents only one part of a total treatment package and should not be seen as a panacea for dealing with ADHD. In fact, instructional and environmental accommodations should always be the first intervention tactic used to assist pupils with ADHD (U.S. Department of Education, 2008a, 2008b). Although medication may play a vital role in treating ADHD, teachers should *never* recommend to parents that their son or daughter needs to be on medication. Only the child's health care professional can make such a determination. Interestingly, despite the importance of medication in helping children with ADHD, few educators are knowledgeable about ADHD and the use of stimulant medication (Snider, Busch, & Arrowood, 2003). (See the accompanying Insights feature on the myths and misunderstandings surrounding stimulant medication on page 254.)

psychostimulants Medications typically prescribed for persons with attention deficit hyperactivity disorder. These drugs activate or enhance specific aspects of neurological functioning that in turn affect executive functions.

Investigators (Visser et al., 2014) and the Centers for Disease Control and Prevention (2018a) estimate that approximately 2.7 to 3.5 million children take medication due to ADHD. Children between 11 and 17 years of age are the most frequent users, with males more likely to take medication than females. Government reports suggest that in 2011 6.1 percent of children between 4 and 17 years of age were taking medication for ADHD compared to only 4.8 percent in 2007.

One of the more popular stimulant medications is Ritalin, with Dexedrine and Adderall also commonly prescribed. See Table 8.3 for an overview of these and other medications. Stimulant medications come in a variety of forms ranging from pills and tablets to liquids and even a skin patch. These medications are available in short-acting, long-acting, or extended-release varieties. The active ingredients are the same, but they are released differently in the body. It is estimated that 70 to 80 percent of children with ADHD respond favorably to medication (Glanzman & Sell, 2019; Lerner & Johns, 2015; Mash & Wolfe, 2019), especially when combined with other interventions. Researchers attribute the effectiveness of stimulant medication to the drug's ability to activate or enhance particular aspects of neurological functioning. By increasing the arousal level of the central nervous system (CNS), these drugs enable individuals with ADHD to concentrate better, to control their impulsivity and distractibility, and to increase their attention span (Barkley, 2006; Connor, 2015; Mash & Wolfe, 2019). An analysis of the chemical and neurological effects on the CNS of stimulant medication is beyond the scope of this discussion; simply stated, scientists believe that psychostimulants operate by increasing the production of dopamine and norepinephrine, chemical neurotransmitters that in turn activate the executive functioning capabilities of the brain—areas involved in organizing, planning, and attention (Arnsten, Berridge, & McCracken, 2009; Connor, 2015; Floet et al., 2010; Lerner & Johns, 2015; U.S. Department of Education, 2008a).

After reviewing scientific evidence, Connor (2015), along with the National Institute of Mental Health (2016), concluded that stimulant drugs are quite safe when taken as directed and at normal prescription dosages. Recent research, however, raises a cautionary flag. Investigators (Moran et al., 2019) found that, in some instances, adolescents and young adults who were first-time users of amphetamines (Adderall) had an elevated incidence for developing psychosis in comparison to peers who were prescribed methylphenidate (Ritalin). The researchers stress that this study does not establish causality nor should the findings be considered definitive. Yet, we believe this information should be carefully considered by caregivers and physicians when treating persons with ADHD.

In the vast majority of youngsters who take psychostimulants for ADHD, significant improvement in behavior is observed (Barkley, 2006; Mash & Wolfe, 2019). Greater benefits are generally found, however, for behavioral outcomes in comparison to academic performance (DuPaul & Kern, 2011; DuPaul & Stoner, 2014; Glanzman & Sell, 2019). The student is less distractible and exhibits greater attention to task, but psychostimulants do not make the child smarter or necessarily result in improved academic achievement.

Table 8.3 Representative Medications Used in Treating Attention Deficit Hyperactivity Disorder

Table 8.3 Representative Medications Used in Treating Attention Deficit Hyperactivity Disorder

Brand Name	Generic Name	Approved Age of Use	Onset of Effectiveness	Duration of Effectiveness	Comments
Ritalin	D,L-methylphenidate	6 and older	Less than 30 minutes	Approximately 4 hours	Most frequently prescribed. Excellent safety record. Use cautiously if history of tics or Tourette syndrome.
Dexedrine	Dextroamphetamine	3	Less than 30 minutes	Approximately 4–5 hours	Must be administered frequently. Excellent safety record. Use cautiously if

Brand Name	Generic Name	Approved Age of Use	Onset of Effectiveness	Duration of Effectiveness	Comments
					history of tics or Tourette syndrome.
Focalin	D-methylphenidate	6 and older	Approximately 30 minutes	Approximately 5 hours	Potential adverse side effects.
Adderall	Dextroamphetamine sulfate	3	Approximately 30 minutes	Approximately 4–6 hours	Requires only one daily dose.
Concerta	Methylphenidate HCL	6	Approximately 30 minutes	Approximately 12 hours	One daily dose. Minimal side effects.
Vyvanse	Lisdexamfetamine	6 and older	Usually 2–12 hours for children ages 6–12; 2–14 hours for adults ages 18–55	Approximately 10–12 hours	One daily dose. Low potential for misuse. No generic form.
Strattera	Atomoxetine HCL	6 and older	Usually within 24 hours; therapeutic level reached in 3–4 weeks	Approximately 20 hours	Nonstimulant medication. Typically one daily dose. Clinically proven effective for adults.

Note: Long-acting and extended-release varieties are available.
Source: Adapted from J. Lerner and B. Johns, *Learning Disabilities and Related Mild Disabilities*, 13th ed. (Stamford, CT: Cengage Learning, 2015), p. 206.
H. Parker, *Medication Chart to Treat Attention Deficit Hyperactivity Disorder*, available at http://www.addwarehouse.com/shopsite_sc/store/html/article3.htm

Medical management of ADHD is not without its drawbacks and critics. It has also been shown to be ineffective for about 25 to 30 percent of individuals who take psychostimulants (Connor, 2015; DuPaul & Stoner, 2014). Typical side effects of using psychostimulants include, in some instances, loss of appetite, insomnia, drowsiness, tics, irritability, abdominal pain, headaches, and growth retardation (Barkley, 2010; Glanzman & Sell, 2019; Mash & Wolfe, 2019). Fortunately, most of the side effects are of short duration. It is important that parents working in conjunction with teachers and health care providers determine which medication is most effective with the least adverse consequences.

A **rebound effect** is sometimes observed in children using psychostimulants. As the effects of the medication gradually wear off, typically in the late afternoon or early evening, the children's behavior significantly deteriorates—they temporarily display greater impulsivity, distractibility, and hyperactivity than was previously observed (Connor, 2015; Glanzman & Sell, 2019; Lerner & Johns, 2015).

rebound effect The behavioral deterioration sometimes observed in persons with attention deficit hyperactivity disorder as the effect of psychostimulant medication gradually wears off.

Home–school communication is vitally important for monitoring medication effectiveness. Once a child is placed on medication, school personnel are often asked to provide feedback regarding the student's behavior, academic performance, and social adjustment, as well as any side effects from the medication. Information gleaned from both parents and teachers is useful to the physician in determining the overall effectiveness of the medication regime. Because teachers cannot contact a youngster's physician without parental permission, communication between teachers and caregivers is essential. Parent–teacher communication can take many forms—telephone calls, emails, or having teachers complete checklists and rating scales.

We encourage schools to establish written policies regarding the administration and storage of any medication given to pupils by school personnel. We also recommend that any adult who administers medication to a child complete a daily medication log; at a minimum, this log should include the medication name, dosage, time, and signature of the person administering the drug. Finally, parents and teachers need to be careful that they do not send a message to the student that medication is a substitute for self-responsibility and self-initiative; nor does the use of psychostimulants absolve the parents and teachers of their responsibilities for dealing with individuals with ADHD (Hallahan et al., 2005).

Finally, we should point out that not all professionals and parents are in favor of using psychostimulants. Some individuals are fearful that prescribing these medications will lead to the illicit use of drugs in later years. Fortunately, this is a misconception. It is true that teenagers with ADHD exhibit a higher incidence of drug abuse when compared to adolescents without ADHD, but there is no scientific evidence that this is the result of using psychostimulants (Glanzman & Sell, 2019). Research, in fact, suggests that just the opposite is true. Individuals taking psychostimulant medication as children are not at increased risk for later substance abuse (Chang et al., 2014; Connor, 2015; Humphreys, Eng, & Lee, 2013). Despite some misgivings about stimulant medication it remains, when appropriately used, "among the most effective treatments for managing symptoms of ADHD" (Mash & Wolfe, 2019, p. 260).

Insights

Myths and Misunderstandings About Stimulant Medication: A Quiz for Teachers

After the following statements, circle T (*true*) if you agree or F (*false*) if you do not agree.

	True	False
1. ADHD is the most commonly diagnosed psychiatric disorder of childhood.	T	F
2. There are no data to indicate that ADHD is caused by a brain malfunction.	T	F
3. ADHD symptoms (e.g., fidgets, does not follow through on instruction, is easily distracted) may be caused by academic deficits.	T	F
4. Stress and conflict in the student's home life can cause ADHD symptoms.	T	F
5. Diagnosis of ADHD can be confirmed if stimulant medication improves the child's attention.	T	F
6. Stimulant medication use may decrease the physical growth rate.	T	F
7. Stimulant medication use may produce tics in students.	T	F
8. Adderall, Ritalin, and Dexedrine have abuse potential similar to Demerol, cocaine, and morphine.	T	F
9. The long-term side effects of stimulant medications are well understood.	T	F
10. Over time, stimulant medication loses its effectiveness.	T	F
11. While on stimulant medication, students exhibit similar amounts of problem behaviors as their normally developing peers.	T	F
12. Short-term studies show that stimulant medication improves the behaviors associated with ADHD.	T	F
13. Studies show that stimulant medication has a positive effect on academic achievement in the long run.	T	F

(Answers on page 259)

Source: Adapted from V. Snider, T. Busch, and L. Arrowood, "Teacher Knowledge of Stimulant Medication and ADHD," *Remedial and Special Education, 24*(1), 2003, p. 50.

Technology and Individuals With Attention Deficit Hyperactivity Disorder

Although many of the assistive technologies discussed in Chapter 5 regarding content-area instruction can benefit students with attention deficit hyperactivity disorder, other types of assistive technology can also specifically support students with attention deficit hyperactivity disorder. For example, students with ADHD may benefit from using a seat cushion or a fidget toy (such as Silly Putty or a squeeze ball). Seat cushions can provide extra stimulation while seated, and fidget toys allow hand movements that can assist students in concentrating (Aune, Burt, & Gennaro, 2010; Denton & Silver, 2012). Students with ADHD may also benefit from self-monitoring. While traditionally self-monitoring involves paper and pencil, students can use technology to self-monitor, such as student response systems (Szwed & Bouck, 2013) as well as smartphones and other mobile technologies (for example, an iPod). Finally, assistive technology tools to support organization may benefit students with attention deficit hyperactivity disorder. See the accompanying Spotlight on Technology feature to learn additional ways that technologies can help.

Spotlight on Technology

Assistive technology devices can aid in supporting students with organization. The tools can range from low-tech to high-tech, including apps for mobile devices that are designed or repurposed to provide organization support.

Tool	Information
App	

Tool	Information
iHomework 2 (Free)	• Keeps track of student's school work, assignments, and grades across iOS and macOS platforms; www.ihomeworkapp.com/app/index.html
Evernote (Free)	• Allows users to type notes, including adding images as well as audio; sync these notes across different devices (e.g., computer, smartphone, tablet); and share notes; https://evernote.com/
What's Today (iOS) (for purchase)	• Creates and maintains schedules for children on the iPad; includes voice support; www.whatstodayapp.com
Stand-Alone Devices	
Revibe: Classic, Connect, or Connect Plus	• Self-monitoring watch-like device that provides reminders via vibration • An app provides real-time updates; https://revibetech.com/

Source: Adapted from E. Bouck, *Assistive Technology* (Thousand Oaks, CA: Sage, 2017).

Adolescents and Adults With Attention Deficit Hyperactivity Disorder

Attention deficit hyperactivity disorder is, in most instances, a lifelong struggle, despite the popular misconception that youngsters "outgrow it" as they mature. This certainly is not true for vast numbers of individuals who continue to exhibit symptoms well into adolescence and adulthood (Barkley, 2010; Mash & Wolfe, 2019; Smith et al., 2016). Approximately seven out of ten children with ADHD will continue to display symptoms in adolescence (Glanzman & Sell, 2019; Hammerness, 2009). Although the signs may become subtler (see Table 8.4), academic difficulties persist, and impaired social skills remain common. In fact, adolescents with ADHD are two to three times more likely to drop out of high school than their typical peers (Barkley, 2015a).

Table 8.4 Representative Characteristics of Attention Deficit Hyperactivity Disorder in Adolescents

Table 8.4 Representative Characteristics of Attention Deficit Hyperactivity Disorder in Adolescents

• Excessive talking • Restlessness • Antisocial behavior • Low self-concept/self-esteem • Inattentiveness	• Impulsiveness • Depression • Academic failure • Impaired social relationships • Difficulty maintaining employment	• Difficulty following through on tasks • Alcohol and drug abuse • Difficulty following instructions • At risk for school suspension, dropping out

Source: R. Barkley, *Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment*, 3rd ed. (New York, NY: Guilford Press, 2006).

When one considers the preceding facts, the prognosis for adults with ADHD is not overly promising in most cases. Well over half of individuals who experience ADHD in childhood will continue to be challenged by symptoms of impulsivity, inattention, and hyperactivity as adults (Barkley, 2010). Because professionals wrongly assumed that ADHD was primarily a childhood disorder, little attention was paid to this condition in adults. Only in recent years has ADHD in adolescents and adults become an area of interest for physicians, researchers, and others (Asherson, Buitelaar, Faraone, & Rohde, 2016; Murphy, 2015).

As noted previously, there is no definitive medical or psychological test to determine ADHD; this statement is equally valid for adults with ADHD. What is often quite revealing and most helpful to clinicians is the individual's personal history (see the chapter opener). Although subjective in interpretation, it does provide professionals with a starting point for recognizing this condition.

As adults, persons with ADHD will often exhibit a variety of characteristics such as the following:

- Anger management difficulties
- Avoidance of tasks that allow for little spontaneous movement
- Day dreaming
- Difficulty engaging in quiet, sedentary activities
- Feelings of restlessness
- Forgetfulness
- Frequent changes in employment
- Frequent interrupting or intruding on others
- Frequent shifts from one uncompleted activity to another
- Heightened distractibility
- Impaired concentration
- Relationship difficulties
- Speaking without thinking (Ramsay, 2015; Weyandt, 2007)

These symptoms have the potential for significantly affecting a wide range of life activities, particularly employment opportunities. Yet medication,

especially extended-release forms, coupled with psychotherapy, has proven to be beneficial for adolescents and adults with ADHD (National Institute of Mental Health, 2016).

Educational/Vocational Outcomes

It is not unusual for individuals with ADHD to experience employment difficulties. Barkley (2010, 2015a) notes that adults with ADHD are more likely than those without ADHD to be fired, impulsively quit a job, and change jobs more often than peers without ADHD. Difficulty in getting along with coworkers and supervisors is another common complaint about workers with ADHD. When one considers the characteristics of adults with ADHD, this is not too surprising. Successful employment for adults with ADHD often depends on a "goodness of fit"—that is, matching the job requirements with the individual's unique profile of symptoms. It would probably be unwise to encourage an adult who is hyperactive and has difficulty sustaining attention to task to seek a sedentary career path such as an accountant or a proofreader.

Educationally, young adults with ADHD are less likely than those without ADHD to attend or graduate from college (Barkley, 2015a). This finding points out the need for supportive services and accommodations for these individuals. Postsecondary institutions are legally required (Section 504 of PL 93–112 and the Americans with Disabilities Act, PL 101–336) to provide special services for their students with ADHD (and other disabilities), but students need to self-advocate and inform school officials of their requirements.

Issues of Diversity

Attention deficit hyperactivity disorder affects people of all ages, social classes, races, and cultures (Hammerness, 2009; Mash & Wolfe, 2019; Weyandt, 2007). When ADHD coexists with cultural and linguistic diversity, it can, according to Smith et al. (2016), present a special set of challenges to teachers. Recall from Chapter 3 that teachers must be sensitive to the values, customs, and heritage of students from culturally and linguistically diverse backgrounds. This statement is especially valid when talking about pupils who exhibit ADHD.

One area of particular concern for professionals is the identification of ADHD in individuals from culturally and linguistically diverse backgrounds. Some are fearful that ethnic and cultural factors may lead to the overdiagnosis of ADHD in some groups, especially African American boys. Because this disorder is frequently identified by means of behavior rating scales, which rely on the subjective opinions of the evaluators, the issue of bias may arise. This concern is especially troublesome when the rater's background differs from that of the student. Differences have been found in how teachers evaluate for ADHD in European American versus African American youngsters. African American boys, for example, were thought to exhibit the most severe symptoms of ADHD, and European American girls were seen as manifesting the least severe symptoms (Weyandt, 2007). Interestingly, Hispanic children are less likely than white and African American children to be diagnosed with ADHD (National Resource Center on ADHD, 2019a).

The intriguing question then is "Are these authentic group differences (which likely reflect normative behaviors) or an indicator of possible rater bias?" Unfortunately, this issue currently remains unresolved.

Chapter in Review

Defining Attention Deficit Hyperactivity Disorder (Learning Objective 8.1)

- Attention deficit hyperactivity disorder (ADHD) is not recognized as a discrete disability under current IDEA legislation.
- Students with ADHD may receive a special education, if eligible, under the category *other health impairments* (OHI).
- The American Psychiatric Association definition considers inattention, impulsivity, and hyperactivity to be key components of this condition.

Etiology of Attention Deficit Hyperactivity Disorder (Learning Objective 8.2)

- Neurological dysfunction, heredity, and environmental factors are suspected of causing ADHD.

Characteristics of Individuals With Attention Deficit Hyperactivity Disorder (Learning Objective 8.3)

- ADHD presents itself in many different ways. Problems with behavioral inhibition are seen as one of the primary characteristics of persons with ADHD.
- Executive functions are often impaired in individuals with ADHD.
- Students with ADHD frequently experience other academic, social, and behavioral problems. This overlap is called comorbidity.

Assessment of Attention Deficit Hyperactivity Disorder (Learning Objective 8.4)

- The assessment and diagnosis of ADHD is a multifaceted endeavor typically involving a medical evaluation and input from parents and teachers via behavioral rating scales.

Educational Considerations (Learning Objective 8.5)

- It is generally believed that most students with ADHD receive services in the general education classroom.
- Multimodal interventions, or concurrent treatments, are generally more effective for individuals with ADHD than any one particular strategy.
- Behavioral interventions, instructional adaptations, home–school collaboration, and the use of medication are some of the intervention options available to students with ADHD.

Stimulant Medication and ADHD (Learning Objective 8.6)

- Psychostimulants should be used only in conjunction with behavioral and educational interventions.

Technology and Individuals With ADHD (Learning Objective 8.7)

- Assistive technology benefits students with ADHD in multiple ways.

Adolescents and Adults With Attention Deficit Hyperactivity Disorder (Learning Objective 8.8)

- In most instances, ADHD is a lifelong condition.
- ADHD can impact employment opportunities for individuals with ADHD.

Study Questions

1. Do you think ADHD should be recognized as a separate disability category according to IDEA? Support your position.
2. What are the three subtypes of ADHD? List three symptoms typical of each subtype.
3. Identify three possible causes of ADHD. Give an example of each.
4. Give five examples of characteristics typical of children and adolescents with ADHD.
5. Why do you think pupils with ADHD frequently exhibit other academic and behavioral difficulties?
6. How is ADHD diagnosed? What role do parents and teachers play in the diagnostic process?
7. What role does medication play in the treatment of ADHD? Why is this approach controversial? Describe three other intervention options for students with ADHD.
8. How can assistive technology help students with ADHD?
9. ADHD is usually a lifelong condition. In what ways might this disorder affect the lives of adults with ADHD?
10. Why are some professionals concerned about the identification of ADHD in students from culturally and linguistically diverse backgrounds?

Key Terms

comorbidity, 234
Strauss syndrome, 236
minimal brain injury, 237
hyperactive child syndrome, 237
executive functions, 239
behavioral inhibition, 240
doctor’s office effect, 242
multimodal interventions, 244
functional behavioral assessment, 245
self-regulation, 248
psychostimulants, 252
rebound effect, 253

Learning Activities

1. Observe students with ADHD in both elementary and secondary classrooms. Ask their teachers what accommodations they typically provide to these pupils. Discover if there are particular instructional strategies that these educators prefer.
2. Interview two adults with ADHD. Learn how this condition has affected their lives. What kinds of strategies have these individuals developed for dealing with their disorder?
3. Attend a local chapter meeting of CHADD (Children and Adults with Attention-Deficit/Hyperactivity Disorder). What issues and concerns were addressed at this meeting? What resources are available in your community for persons with ADHD across the life span?

Organizations Concerned With Attention Deficit Hyperactivity Disorder

A.D.D. WareHouse

www.addwarehouse.com

Attention Deficit Disorder Association (ADDA)

www.add.org

CHADD (Children and Adults with Attention-Deficit/Hyperactivity Disorder)

www.chadd.org

Reflecting on Standards

The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Learning Environments (CEC Initial Preparation Standard 2.2)

Reflect on what you have learned about self-regulation and monitoring in this chapter. If you were to have a student in your class who needed to learn new techniques for self-regulation, what might be some self-reinforcement strategies you could teach him or her? What types of reinforcement do you think would be effective?

Focus on Curricular Content Knowledge (CEC Initial Preparation Standard 3.3)

Reflect on what you have learned in this chapter about students with attention deficit hyperactivity disorder. If you were to have a student in your class who got distracted easily by his or her peers, how might you modify your student's learning environment?

Student Study Site

Sharpen your skills with SAGE edge at **edge.sagepub.com/gargiulo7e**. SAGE edge for students provides a personalized approach to help you accomplish your coursework goals in an easy-to-use learning environment.

Answer Key to Myths and Misunderstandings About Stimulant Medication: A Quiz for Teachers on p. 254

1. True
2. False
3. True
4. True
5. False
6. True
7. True
8. True
9. False
10. True
11. False
12. True
13. False

9 Individuals With Emotional or Behavioral Disorders

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Learning Objectives

After reading Chapter 9, you should be able to:

9.1 **Describe** the issues surrounding the definition of emotional or behavioral disorders.
9.2 **Compare** clinically derived and statistically derived systems for classifying emotional or behavioral disorders.
9.3 **Explain** how society has historically dealt with persons with emotional or behavioral disorders.
9.4 **Identify** biological and psychosocial risk factors of emotional or behavioral disorders.
9.5 **Outline** two approaches for preventing emotional or behavioral disorders.
9.6 **List** the learning and social characteristics typical of students who exhibit emotional or behavioral disorders.
9.7 **Describe** contemporary approaches for assessing pupils with emotional or behavioral disorders.
9.8 **Discuss** academic and behavioral interventions often used with individuals with emotional or behavioral disorders.
9.9 **Explain** how assistive technology benefits students with emotional or behavioral disorders.
9.10 **Summarize** educational services for persons with emotional or behavioral disorders across the life span.
9.11 **Identify** contemporary issues surrounding students with emotional or behavioral disorders.

Mike

Mike was a happy baby who was constantly moving—not running all over the place, but he would rock when he played or sat or rode in a car. He even rocked himself to sleep on his hands and knees as a baby in his crib. Mike appeared to be very bright and very verbal. He could converse better than most children his age. The problem we had was that he couldn't sit still.

By the time he was in kindergarten, he was diagnosed with attention deficit hyperactivity disorder (ADHD). He was prescribed Ritalin, and then clonidine was added because he had such emotional mood swings. His kindergarten teacher was wonderful about communicating with us and working with him. I don't know how we'd have managed without her. I felt she had his best interest at heart in all that she did, and she treated him with love and kindness, but Mike was held back in kindergarten due to his immaturity. The school convinced us it would be the best thing for him. Yet, I had no idea how devastating this would be for Mike's self-esteem.

During his second year of kindergarten, he began having thoughts he couldn't control. His teacher called us because he told her he was having thoughts of killing his brother with a knife and said he would never do that but couldn't stop thinking about it. This was the beginning of his obsessive thoughts. During the next two to three years of school, Mike developed frequent outbursts of anger that were incredible to see in a child so small. He would fly into a rage over the least thing, rant and rave loudly, occasionally throw things, and then suddenly be as calm as a kitten. He frequently blamed all of his problems on the fact that he "failed" kindergarten and was stupid. His schoolwork began to suffer drastically. Mike's obsessive thoughts included burning down the house, killing his beloved cat, and a fear that someone was going to break into the house and kill him.

By the third grade, Mike was exhibiting eye twitches, grunts, sniffing, and throat clearing. He would pull his hair when he became frustrated, and when he couldn't do his schoolwork, he hit himself or bit his arms. He occasionally came home with teeth prints on his forearm or other forms of self-injurious behavior. He began to show signs of depression, and we decided it was time to switch from his pediatrician to a specialist. While these behaviors seem bizarre, they weren't frequent at first and only gradually got to the point that they were interfering with his life. Then they seemed to go from occasional to constant in the space of a couple of weeks. He had frequent headaches, stomachaches, and vomiting episodes, and he began picking at his fingers and lips until they bled. We saw a pediatric neurologist who diagnosed him with Tourette syndrome, obsessive-compulsive disorder (OCD), ADHD, and depression. He was placed on new medicines, and in spite of (or because of) them, we saw a whirlwind of worsening behaviors. He began crouching on the floor in church, in the car, and under his desk at school. He was very upset that he wasn't normal like everyone else. It was heartbreaking to see our child go through these things and not be able to "make it go away." Although my faith had been my mainstay in all that we went through, it was put to the test the day we drove home with Mike crouching on the floorboard and crying. He looked up and said, "If God really loves me, why did He make me this way? Why do I have to have all these problems?"

Mike's grades worsened, and so did his relationships with classmates. He began to come home telling me that kids made fun of him for clearing his throat and other behaviors. He got into frequent arguments with classmates and sometimes told me about things that they had said or done to him, which proved to be untrue. He seemed to believe the stories that he told. He usually held in his outbursts at school but began to come apart as soon as I picked him up. His teacher was wonderfully patient with him and tried everything imaginable. She gave him tests orally, which helped, and allowed him to run an errand to calm him down or wake him up as the situation warranted (he began to sleep to escape when he felt stressed out).

His home life worsened. He began to cry easily when he had anger outbursts, and sometimes he said he wanted to kill himself. He also said he wanted to kill me a time or two and stormed off listing horrifyingly descriptive ways he would do this under his breath. I remember thinking that if he were a little older, I would be afraid for my safety.

Within a few weeks of starting yet another round of medications for depression/OCD, hallucinations, and ADHD, we began to see improvement. It took a year to get somewhat

back on track; his grades were still awful, but he felt better, and that was all I cared about at that point. We finished the fourth grade somehow and changed schools for the fifth grade.

When Mike went to junior high, we had to fight for everything we got in his individualized education program meetings. We got him in special education under the umbrella *other health impairments*. We also fought for and got resource room services for the subjects we felt he needed. Gradually we were able to pull him from the resource classes and put him back into general education classes. By the end of the eighth grade, he was in all regular classes, but we held our breath each time report cards came out.

Mike is now nearing the end of the tenth grade, and I look back with amazement at how far he/we have come. He is enrolled in all regular classes now and on the general diploma track. After years of hounding and consequences for lost/undone homework, he is managing his grades with almost no intervention from us and has earned mostly As and Bs (with an occasional C in algebra or English). He is happy now, and although he is almost 17, he rarely asks to go out or do things with friends. We are working on getting him to drive, but he has been hesitant and a little fearful.

When I look back, I think that what has helped Mike the most is the right combination of medications and caring, dedicated teachers who went the extra mile. We don't know what the future holds for Mike, but we will face it with him as it comes, and we'll all be the stronger for it in the long run.

—Anonymous

The education of children and youth with emotional and behavioral disorders has long been a subject of controversy. As the chapter opener demonstrates, many individuals struggle to effectively address the needs of these children in home, school, and community settings. The child in this feature, Mike, has a history of behavioral problems, including aggressive behavior, that have been of concern to his mother and school officials for many years. These concerns are legitimate, as we all want our children to reach their full potential. Mike, however, was fortunate in that he had access to appropriate educational, medical, and psychological services. Too many children and youth with emotional and behavioral disorders do not have access to early and appropriate interventions. Without effective interventions, these individuals may not experience positive outcomes. Left untreated, students with emotional or behavioral disorders are at high risk for experiencing negative long-term outcomes, including academic failure, school dropout, incarceration, and under- or unemployment (Kauffman & Landrum, 2018).

What appears to you as abnormal behavior may appear to another person as within the range of normal human behavior.

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This chapter focuses on students with problematic behaviors. It would be a mistake, however, to assume that all children and youth with emotional or behavioral disorders exhibit acting-out, aggressive behaviors. In fact, students with these disabilities represent an extremely heterogeneous group exhibiting a wide range of behaviors, including those related to such debilitating disorders as schizophrenia, depression, anxiety, and conduct disorders. Despite this heterogeneity, however, they share at least three experiences in common. First, their behaviors are almost always upsetting and troubling to those who teach, live with, and work with them. Second, they are often blamed for their disability by those around them, who do not recognize that they are disabled and believe they are capable of changing their behavior if they so desire. Finally, these students encounter ostracism and isolation because of the stigma associated with individuals considered to be **mentally ill** —a generic term used by many professionals outside the field of special education for individuals with emotional or behavioral disorders. In fact, the reactions of those who encounter students with emotional or behavioral disorders are often more debilitating than the disability itself.

mentally ill A generic term often used by professionals outside of the field of special education to refer to individuals with emotional or behavioral disorders.

Defining Emotional or Behavioral Disorders

There is no universally accepted definition of **emotional or behavioral disorder** (Kauffman & Landrum, 2018; Landrum, 2017). Disagreements among professionals stem from many factors, including a diversity of theoretical models (for example, psychodynamic, humanistic, behavioral), the fact that all children and youth behave inappropriately at different times and in different situations, the difficulty of measuring emotions and behavior, and the variance across cultures in terms of what is acceptable and unacceptable behavior. Similarly, the terms we use to describe this population are many and diverse: *emotionally disturbed*, *behaviorally disordered*, *emotionally conflicted*, *socially handicapped*, *personally impaired*, *socially impaired*, and many others. This diversity of definitions and terms is compounded by the marked variability in people's definitions of "normal" behavior. We each view behavior through personal lenses that reflect our own standards, values, and beliefs. What appears to you as abnormal behavior may appear to another person as within the range of normal human behavior (Mundschenk & Simpson, 2014).

emotional or behavioral disorder A chronic condition characterized by behaviors that significantly differ from age norms and community standards to such a degree that educational performance is adversely affected.

Federal Definition

The Individuals with Disabilities Education Improvement Act of 2004 (IDEA), or PL 108–446, uses the term **emotional disturbance** to describe the population referred to in this chapter as individuals with emotional or behavioral disorders. The federal definition of emotional disturbance, modeled after one proposed by Eli Bower (1960), is as follows:

emotional disturbance A term often used when referring to individuals with emotional or behavioral disorders.

> (i) The term means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance:
>
> (A) An inability to learn that cannot be explained by intellectual, sensory, or health factors.
>
> (B) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers.
>
> (C) Inappropriate types of behavior or feelings under normal circumstances.
>
> (D) A general pervasive mood of unhappiness or depression.
>
> (E) A tendency to develop physical symptoms or fears associated with personal or school problems.
>
> (ii) The term includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance. [34 C.F.R. § 300.8(c)(4)]

Since the passage of PL 94–142 in the mid-1970s, only two changes have been made to this definition: (1) Autism, originally included in this category, became a separate disability category in 1990. (2) The term *seriously emotionally disturbed* was changed to *emotional disturbance* via PL 105–17 in 1997.

In contrast to the current federal definition, Bower's (1960, 1981) definition did *not* exclude students considered to be **socially maladjusted**. Rather,

Bower intended for the five components of the definition to be indicators of social maladjustment (Bower, 1982). Social maladjustment is often equated with **conduct disorders**, one of the most common psychiatric disorders among children and youth (Wicks-Nelson & Israel, 2015). In your classroom, you may have a difficult time understanding why these students may not qualify for special education and related services, as you will probably perceive them as being very disabled by their behavior. You will not be alone in this perception. The Council for Children with Behavioral Disorders (CCBD) and others have been most vocal and active in advocating for the inclusion of students with conduct disorders in the federal definition (Council for Children with Behavioral Disorders, 1990; Forness & Kavale, 2000).

socially maladjusted A term used to describe individuals whose social behaviors are atypical and who are often regarded as chronic social offenders.

conduct disorder A common psychiatric disorder among children and youth characterized by disruptive and aggressive behavior as well as other actions that violate societal rules.

Many professionals believe that the federal definition is vague, equivocal, and insufficient for identifying the full range of emotional or behavioral disorders found among children and youth. Other criticisms have targeted the ambiguity of such terms as *a long period of time, to a marked degree*, *inability to learn*, and *pervasive* (Kauffman & Landrum, 2018; Mundschenk & Simpson, 2014). The phrase *adversely affects a child's educational performance* has been criticized because at times it has been narrowly interpreted to mean only academic performance and not performance related to critical behavioral, social, and vocational skills. Likewise, the phrase *inability to learn* is suspect because it may give the impression that children and youth with emotional or behavioral disorders do not have the capacity to learn—a conclusion that is simply untrue.

An Alternative Definition

Because of perceived difficulties inherent within the federal definition, the Council for Children with Behavioral Disorders (2000) proposed a more functional and workable definition that paralleled the earlier thinking of the National Mental Health and Special Education Coalition (Forness & Kavale, 2000), a group of professionals representing thirty different mental health, education, and child advocacy organizations. One of the recommendations contained in this document was to change the term *emotionally disturbed* to *emotional or behavioral disorders.* The latter term is generally more accepted in the field today because it (1) has greater utility; (2) is more representative of the students who experience problems with their emotions, their behavior, or both; and (3) is less stigmatizing than *emotional disturbance.*

Excluding students thought to be socially maladjusted from the IDEA definition of emotional disturbance is controversial.

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According to the CCBD, the term *emotional or behavioral disorders* means a disability that is

- characterized by behavioral or emotional responses in school programs so different from appropriate age, cultural, or ethnic norms that the

responses adversely affect educational performance, including academic, social, vocational, and personal skills;
- more than a temporary, expected response to stressful events in the environment;
- consistently exhibited in two different settings, at least one of which is school related; and
- unresponsive to direct intervention applied in general education, or the condition of the child is such that general education interventions would be insufficient.

> The term includes such a disability that coexists with other disabilities.
>
> The term includes a schizophrenic disorder, affective disorder, anxiety disorder, or other sustained disorder of conduct or adjustment, affecting a child if the disorder affects educational performance as described [above]. (McIntyre & Forness, 1996, p. 5)

Despite the many advantages of this proposed alternative definition, little progress has been made toward incorporating it into federal law.

First Person: My Eagle Scout

We are at my son's Eagle recognition ceremony, an accomplishment that so few young men ever achieve. He has been in scouting since first grade, before we knew there were issues in his life that might make getting to this point a problem for him. He is sitting on the opposite side of this very large church, waiting to be called forward to receive his award. I am standing near the wall, poised to take his picture and thinking that he has no idea where I am. But in true fashion, he spies me and acknowledges my presence, just like he does at all his functions. We are connected, he and I. He is not embarrassed to be seen with his mom. What a joy he is—gentle, kind, loving, and totally uninhibited in his expression of joy or excitement. I tell my other children that while I love them all, I like him the best. For what is there about him that you wouldn't like? At 15 he is tall and handsome, a musician, an Eagle Scout, an avid Bama fan, a good student, a young man of faith, and a friend to anyone who will simply give him a chance. At times like this I often

pause to reflect on how blessed we are to have him in our lives. Life has not been easy for him academically or, perhaps more important, socially. He has severe learning disabilities in some major areas such as math and reading, which impact every aspect of learning. He also has Tourette syndrome, which impacts him socially, and this is perhaps what hurts him the most.

Having a child diagnosed with anything that means his or her life is going to be more difficult is a blow to a family. Hearing a doctor or a group of educators tell you that your child will likely not have the academic skills to go on to college is hard to hear. Watching peers shun and make fun of your child because of his speech and social skills is even more painful, and you are left trying to figure out how to proceed. How do you help your child achieve his or her goals? It is like trying to negotiate a complex maze. You don't know where to go or what to do, and you often have no one in particular to ask about what to do or where to go. Parents often have to learn as they travel this course, and having educators who are willing to work with them can make all the difference in the outcome.

Reflecting back fifteen years, there was nothing unusual about my son's birth or development—well, for the most part. As a young child he was always a bit intense. He would pick up and put away everything he got out—not a bad habit, but unusual for a 2-year-old. He would try and clean the glass doors if he saw they needed it. He was extremely sensitive to loud noises and to light. Once he was even called an ugly name by an adult because he began to cry while in the gym at our church when the noise level had become unbearable to him.

So up until he was around 2 years old we thought, "Great, a child that will just move on easily." He was sweet and gentle and developing in a normal fashion. Then we began to notice that his speech was not coming along as it should. I was not blind. I was the mom of three kids, one of whom already had problems, and I was not about to wait to see if everything would turn out okay. So we began our struggle to find out what was going on.

Speech therapy was first. This was when the educational system first began to help. Therapy was provided by the school system, and he improved. But kindergarten started, and concerns began to surface. His reading was slow. He had difficulty making eye contact with his peers. He overreacted to being touched and didn't seem to know how to respond when socializing with his classmates. If his hands were dirty or sticky, he simply had to wash them and could not focus on anything else until that task was complete. In fact, if he got something in his mind that had to be done, then it had to be done before he could move on to the next thing.

In first grade he was tested by his school, and indeed, what we suspected was true. There were some issues with academics. But it seemed to be more than this. At this point I should say that the school was wonderful. It was at this time I realized just what an ally a good school system could be. Over time, more tests, outside consultations, and meetings were held until, finally, a diagnosis of Asperger syndrome was given. This diagnosis, however, never seemed to fit. As a parent, I continued to try and figure out if the experts were right. As it turns out, they were not. Around 7 years of age, my son was diagnosed with Tourette syndrome. Subsequently, he was diagnosed with a severe reading and math

disability. This made sense and finally fit what we had been seeing. In every other aspect of his life, though, he did fine.

As a parent, it was like being hit in the stomach. I was sad for my child, and irritated at others around me who had children that seemed to be developing fine and who seemed unwilling to give my child a chance. I was angry with adults who wouldn't invite him over or include him in activities. Even relatives who thought he acted strange were the subjects of my irritation. You just want others to see in your child what you see. You find yourself defensive and trying to prevent your child, at least initially, from seeing himself as different. And then the work began with the school—the place he was to spend the majority of his life until age 18.

I have to say that my involvement with our school system has been, for the most part, excellent but, at times, very frustrating. As a parent, I was a bit intimidated by my son's teachers and by the administrative staff. While I trusted the school system, I wasn't about to sit back and let it totally direct his education. We had him evaluated outside the school system by a private therapist and had him seen by a pediatric neuropsychologist, who subsequently came to the school to meet with the faculty. I attended all meetings and read everything I could get my hands on. I volunteered for everything so I could be nearby, and I even acted as his aide in math class. His teachers were more than happy to have me, and I always felt welcomed by them in the classroom.

By educating myself I was able to be a key member of his educational team and not just a bystander, letting others call the shots. Because the educational team members knew I was involved, they made every effort to include me and to keep me completely informed. We did not always agree, however, on the direction his education should take, but it was not just academics that were at issue here.

I learned early on that sometimes academics had to come second to activities that allowed him a social outlet. Our son had difficulty understanding social cues. He had trouble with peer relationships. He wanted so much to have friends, but for the most part his peers had little to do with him. He was made fun of, laughed at, and rarely included in social events such as spend-the-night gatherings, parties, or even groups on the playground. You see, he had a hard time understanding and learning the rules of games, such as football. The light hurt his eyes, and the noises hurt his ears. He has trouble even now remembering information. He does not feel the passage of time and cannot tell you how many days there are in a year or a month, nor can he easily figure out how to divide something in half. Yet, he presents to the world as being very "normal." Everyone expects him to be able to do those things, and when he can't, they laugh and call him names. He has been bullied in the halls, at lunch, out in public, and on the internet to the point where we had to threaten to bring charges against some of his peers.

The school has been an ally for us. Teachers and administrators have been available to answer my questions and to advocate for him. They have made sure that tests and study guides are appropriate and, when they are not, have allowed him extra time to study or to retake tests. They have provided guidance to me so that I can help from home, and I think, most important, they recognize that he is trying and that he does the best he can. They have, on many occasions, tried to educate other students about how to treat others

and have allowed me time to talk to his peers about Tourette syndrome in an attempt to educate them.

It hasn't always been easy. There have been times that I have had to go to war over him. Middle school was particularly hard. Part of the difficulty may have been because we had such a good experience in elementary school. Going from the protected environment of elementary school to middle school where he knew so few of the children in his class, where he was made fun of in the halls, and where he had so many different teachers was extremely difficult to deal with. But he survived, and things are better now that we are in high school.

For now at least, my son is doing well. He has made the transition to high school and has found his niche. He is in the marching band and loves it. He no longer has to participate in classes that are so over his head as to be embarrassing for him. He has a case coordinator who works well with him and who helps us with his class schedule. Because he will graduate with a diploma that is vocational in nature, he takes classes that are geared to his individual needs and not college prep courses. Vocational rehabilitation will start working with him, and he will soon begin to decide what kind of job he wants and begin training toward that goal. His teachers are very helpful and have shown tremendous flexibility with him.

As his parents, we are still protective and still very much involved in his life. But even I am having to back off a bit. He is a teenager now and will soon be driving (he just got his permit), which is a bit scary, but I realize he is growing up and must learn to stand on his own. He will do well. After all, school is the only time in your life where you are expected to be good at everything. He will soon start choosing his path in life. I find that my anger has finally begun to subside and that I am growing more comfortable all the time with the outlook for his future. He has friends, particularly those at church, who love him. He has siblings who watch out for him. He is growing up quite nicely and is truly a young man with a mind and faith of his own. I could not be more proud.

—*Anonymous*

Classification of Individuals With Emotional or Behavioral Disorders

The term *emotional or behavioral disorders* encompasses a wide range of disorders. When a student is given this broad label, educators know very little about the specific nature or characteristics of the student's disability. To provide greater clarity and specificity, educators and mental health professionals have attempted to classify the many different types of emotional or behavioral disorders. Thus, for example, if a student is identified as having a conduct disorder, educators can anticipate that the student's behavior will be characterized by acting-out, aggressive, and rule-violating behavior. This pattern can be distinguished from schizophrenia, which is characterized by disturbances in thought processes, hallucinations, and bizarre behavior.

Two widely used classification systems are pertinent to the field of education. **Clinically derived classification systems** have been developed by psychiatrists and mental health professionals to describe childhood, adolescent, and adult mental disorders. The most widely used psychiatric, or clinically derived, classification system in the United States is the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., or DSM-5), which was revised by the American Psychiatric Association (APA) in 2013. **Statistically derived classification systems** are developed using sophisticated statistical techniques to analyze the patterns or "dimensions" of behaviors that characterize children and youth with emotional or behavioral disorders.

clinically derived classification system A system frequently used by mental health professionals to describe childhood, adolescent, and adult mental disorders.

statistically derived classification system A system developed to analyze patterns of behaviors based on statistical procedures that characterize children and youth with emotional or behavioral disorders.

Clinically Derived Classification Systems

In general, there are no “tests” available to medical professionals to diagnose emotional or behavioral disorders among children and youth. For many years, psychiatrists and other mental health professionals have relied on clinically derived classification systems, such as the DSM-5, to assist them in making psychiatric diagnoses. These systems group behaviors into diagnostic categories and provide criteria useful for making diagnoses. Clinically derived systems also include descriptions of symptoms, indicators of severity, prevalence estimates, and information about variations of disorders. To make a diagnosis, psychiatrists and other mental health professionals may observe an individual’s behavior over time and across different settings and then compare these behaviors to diagnostic criteria provided in a classification system.

Although such systems in the past have focused primarily on adult disorders, in recent years they have increasingly included disorders found among children (Wicks-Nelson & Israel, 2015)—for example, attention deficit hyperactivity disorder, conduct disorder, anxiety disorders, and depressive disorders. A psychiatric diagnosis does not mean, however, that a child will automatically qualify for a special education (Kauffman & Landrum, 2018). Although many students with psychiatric diagnoses are eligible for special education, such eligibility is independent of, and uses criteria different from, those criteria found in the DSM-5.

Statistically Derived Classification Systems

Some researchers use sophisticated statistical techniques to establish categories, “dimensions,” or patterns of disordered behavior that appear to be common among children and youth with emotional or behavioral disorders. Using these methods, researchers have been able to develop normative standards across a variety of dimensions to assist in making important decisions, such as eligibility for special education and related services.

Two global dimensions that have been consistently identified are **externalizing disorders** and **internalizing disorders**. Externalizing disorders, sometimes referred to as “undercontrolled” disorders, are characterized by aggressiveness, tempter tantrums, acting out, and noncompliant behaviors. Externalizing disorders are disturbing to others and generally result in considerable disruption in the classroom. In contrast, internalizing disorders, sometimes referred to as “overcontrolled” disorders, are characterized by social withdrawal, depression, compulsions, and anxiety. Children and youth with internalizing disorders are far less likely to be identified by their teachers and families as having an emotional or behavioral disorder because they do not create the “chaos” that often characterizes children and youth with externalizing disorders. These internalizing disorders, however, are equally serious; if left untreated, they can lead to a variety of negative long-term outcomes, including suicide (U.S. Department of Education, 2000). In general, males tend to be at more risk for developing externalizing disorders, whereas females appear to be at greater risk for developing internalizing disorders (Webber & Plotts, 2008; Young, Sabbah, Young, Reiser, & Richardson, 2010). However, when females with externalizing disorders are identified, their problems may be more severe than those of their male counterparts.

externalizing disorder A behavior disorder characterized by aggressive, disruptive, acting-out behavior.

internalizing disorder A behavior disorder characterized by anxiety, withdrawal, fearfulness, and other conditions reflecting an individual's internal state.

Other dimensions have also emerged from statistically derived procedures. Perhaps the best-known dimensions are those reported by Quay and Peterson (1996), reflected in the six scales of their Revised Behavior Problem Checklist (see Table 9.1). This behavioral rating scale is used by many educators to identify children and youth with emotional or behavioral disorders.

Some interesting findings in current research suggest that children and youth with emotional or behavioral disorders rarely exhibit problems along a single dimension. Rather, they often have elevated levels along two or more dimensions (Kauffman & Landrum, 2018; Wicks-Nelson & Israel, 2015). In fact, the co-occurrence of disorders may be the norm rather than the exception. For example, a student may have both a conduct disorder and attention problems. The fact that disorders often co-occur means that the students in your classroom will often present very complex behaviors, frequently requiring multifaceted interventions designed to address a wide range of behaviors.

A Brief History of the Field

The inclusion of students with emotional or behavioral disorders in public schools is a relatively recent phenomenon. Throughout history, the nature of this disability has frequently resulted in stigma and ostracism by society in general, and exclusion from education in particular. Even today, there is debate and controversy regarding whether or not these students should be educated in our public schools.

The historical roots of the field of emotional or behavioral disorders are intertwined with the history of other fields of study—most notably, intellectual disability, psychiatry, and psychology (Kauffman & Landrum, 2018). Not until 1886 was a legal distinction made between “insanity” and “feeblemindedness” (Hayman, 1939). This distinction was an important one, as it marked the separation of emotional or behavioral disorders from intellectual disability. Differentiating the history of emotional or behavioral disorders from that of intellectual disability before that time is difficult. Because this common history is detailed in the chapter on intellectual disability (Chapter 6), this historical review (see Table 9.2) begins with the nineteenth century. Unless otherwise noted, the historical account that follows is based on a synthesis of several substantive resources: Despert (1965), Kauffman and Landrum (2018), Lewis (1974), Rie (1971), and Safford and Safford (1996).

Table 9.1 Quay and Peterson’s Dimensions of Problem Behaviors

Table 9.1 Quay and Peterson’s Dimensions of Problem Behaviors

Dimension	Behavior
Conduct Disorder	This dimension is characterized by physical aggression, difficulty controlling anger, open disobedience, and oppositionality.

Dimension	Behavior
Socialized Aggression	This dimension includes behaviors similar to conduct disorders except that children and youth display these behaviors in the company of others. Behaviors include stealing and substance abuse in the company of others, truancy from school, gang membership, and lying.
Attention Problems/Immaturity	This dimension is often associated with attention deficit hyperactivity disorder. It includes behaviors such as short attention span, diminished concentration, distractibility, and impulsivity, as well as behaviors such as passivity, undependability, and childishness.
Anxiety/Withdrawal	This dimension is related to internalizing disorders. It includes behaviors related to poor self-confidence and self-esteem, hypersensitivity to criticism and rejection, generalized fearfulness and anxiety, and reluctance to try new behaviors because of fear of failure.
Psychotic Behavior	This dimension includes psychotic symptoms such as speech disturbance, bizarre ideation, delusions, and impaired reality testing.
Motor Tension Excess	This dimension is characterized by overactivity, including restlessness, tension, and “jumpiness.”

Source: Adapted from H. Quay and D. Peterson, *Manual for the Revised Behavior Problem Checklist* (Lutz, FL: Psychological Assessment Resources, 1996), p. 1. Reproduced by special permission of the publisher, Psychological Assessment Resources, Inc., 16204 North Florida Avenue, Lutz, Florida 33549, from the *Revised Behavior Problem Checklist* by Herbert Quay, PhD. Copyright 1983, 1996 by PAR, Inc. Further reproduction is prohibited without permission of PAR, Inc.

Table 9.2 A Timeline of Representative Historical Events in the Field of Emotional or Behavioral Disorders

Table 9.2 A Timeline of Representative Historical Events in the Field of Emotional or Behavioral Disorders

Date	Individual or Event
1817	First private psychiatric hospital opens in Pennsylvania operated by the Quakers, known today as Friends Hospital.
1892	American Psychological Association founded.
1908	Clifford W. Beers authors *A Mind That Found Itself*, an autobiographical account of being institutionalized in a mental hospital.
1909	National Committee for Mental Hygiene established.
1909	Juvenile Psychopathic Institute opens in Chicago to investigate causes of juvenile delinquency; treatment based on Freudian or psychodynamic principles.
1909	Ellen Key publishes *The Century of the Child*, a prophetic work that, in part, focused on child-centered education and foretold of future changes in education and family life.
1913	John Watson introduces behaviorism to North America in his work, *Psychology as the Behaviorist Views It*.

Date	Individual or Event
1914	First special education teacher training program established in Michigan.
1922	Forerunner of the Council for Exceptional Children organized at Teachers College, Columbia University.
1924	American Orthopsychiatric Association founded.
1928	First training program in school psychology offered at New York University.
1931	First psychiatric hospital specializing in the treatment of children and adolescents with emotional or behavioral disorders opens in Rhode Island. Operates today as the Emma Pendleton Bradley Hospital.
1934	Lauretta Bender begins her pioneering work with children with schizophrenia at the Bellevue psychiatric clinic in New York City.
1936	Leo Kanner publishes *Child Psychiatry*, the first textbook on child psychology published in the United States.
1944	Pioneer House for delinquent and emotionally disturbed boys opens in Detroit. Established by Fritz Redl and David Wineman who pioneered the Life Space Interview.
1944	Bruno Bettelheim, a psychoanalyst, serves as the director of the Orthogenic School, a residential school in Chicago for children identified as emotionally disturbed.

Date	Individual or Event
1960	Eli Bower offers an early definition of emotional disturbance.
1960s	Emergence of conceptual models guiding educational programs, practices, and curricula for children and youth with emotional or behavioral disorders.
1964	Council for Children with Behavioral Disorders becomes a division within the Council for Exceptional Children.
1968	Frank Hewett authors *The Emotionally Disturbed Child in the Classroom*, which describes an "engineered classroom" based on behavioral principles aligned with the theorizing of B. F. Skinner.
1975	Herbert Quay and Donald Peterson develop an assessment tool (Behavior Problem Checklist) for identifying children with emotional or behavioral disorders.
1975	Public Law 94–142 enacted.

Prevalence of Emotional or Behavioral Disorders

How prevalent are emotional or behavioral disorders among school-age children and youth? The answer to this question is not a simple one; prevalence estimates for this population vary widely. Among the reasons for this variance are conflicting definitions and a lack of consensus on what constitutes acceptable behavior.

The U.S. Department of Education (2018b) reports that during the 2016–2017 school year, approximately 332,700 students ages 6–21 were receiving a special education and related services because of an emotional disturbance. This number represents 5.5 percent of the total number of students served in special education, making this the sixth-largest disability category for students in this age range.

At the preschool level, the U.S. Department of Education (2018b) reports that approximately 3,000 children ages 3–5 were identified as emotionally disturbed during the 2016–2017 school year. This low level of identification may be due to at least two factors. First, because there is an emphasis on noncategorical labeling at the preschool level and in the early elementary grades, many students who ultimately are identified as emotionally disturbed may be labeled as developmentally delayed during the early childhood years. Second, school personnel may be hesitant to identify a youngster as exhibiting emotional or behavioral disorders during the early childhood years.

Although only 0.5 percent of the school-age population currently receives special education services for emotional or behavioral disorders (U.S. Department of Education, 2018b), credible estimates in the United States suggest that at least 3 to 5 and possibly 6 percent of school-age children and youth exhibit serious and persistent problems (Kauffman & Landrum, 2018; Mundschenk & Simpson, 2014). Students with emotional or behavioral disorders are thought to be the most underidentified of all IDEA disability categories. Numerous explanations have been offered for this phenomenon. One possible reason is the marked variability across states in identifying

pupils with emotional or behavioral disorders. Recall that IDEA allows states to adopt their own definitions, provided that state definitions identify an equivalent group of students. In fact, state definitions vary so widely that identification may be a function more of where an individual lives than of any other factor. Kauffman and Landrum (2018) believe that social policy and economic factors also play critical roles in underidentification.

Etiology of Emotional or Behavioral Disorders

Our understanding of the causes of emotional or behavioral disorders has increased substantially in recent years. A major milestone was the publication in the late nineties of a national report, *Mental Health: A Report of the Surgeon General* (Satcher, 1999). For the first time in history, the country's most prominent health care leader, the surgeon general, recognized that addressing the needs of both children and adults with mental illness is a pressing national concern.

This report describes the research regarding many of the risk factors associated with mental disorders of childhood. These risk factors often interact in a synergetic fashion; as the number of risk factors increases, so do the chances of negative outcomes such as emotional or behavioral disorders.

There is a growing consensus that biological factors are particularly influential in the etiology of several disorders.

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Biological Risk Factors

While many professionals agree that the development of emotional or behavioral disorders is due to both biological and environmental factors (Cook & Ruhaak, 2014; Kauffman & Landrum, 2018; Landrum, 2017), there is a growing consensus that biological factors are particularly influential in the etiology of several disorders. These emotional or behavioral disorders can be the result of either genetic influences or biological insults. Disorders that likely have a genetic influence include, for example, bipolar disorder, schizophrenia, obsessive-compulsive disorder, and **Tourette syndrome** (Wicks-Nelson & Israel, 2015). Biological insults such as injury, infection, lead poisoning, poor nutrition, or exposure to toxins (including intrauterine exposure to alcohol, illicit drugs, or cigarette smoke) may also influence the development of emotional or behavioral disorders.

> **Tourette syndrome** A neurological disorder characterized by motor tics and uncontrollable verbal outbursts.

Research also suggests that infant temperament (that is, an infant born with a "difficult" temperament) may precede the development of emotional or behavioral disorders (Kagan, 2017; Rosenblum, Dayton, & Muzik, 2019; Webber & Plotts, 2008). A "difficult" infant temperament may be mediated, however, to some extent by the environment (Kauffman & Landrum, 2018).

Individuals with emotional or behavioral issues frequently exhibit additional or comorbid disorders with depression being common (Landrum, 2017; Mash & Wolfe, 2019). Suicide among depressed children and youth is a major concern in our society. Research suggests that a high percentage of children and adolescents who have committed suicide had an apparent, though not identified, emotional or behavioral disorder before their deaths (Kauffman & Landrum, 2018; Wicks-Nelson & Israel, 2015). Table 9.3 lists some of the warning signs of an impending suicide. As an educator, you

need to be especially alert to these warning signs and be sure to report them to parents, counselors, administrators, and other appropriate professionals.

Psychosocial Risk Factors

Conduct disorders typically have both biological and environmental components, with substantial psychosocial risk factors involved in their development. Environmental factors such as parental discord, a parent's mental illness or criminal behavior, overcrowding in the home, and large family size may result in conditions conducive to the development of conduct disorders—especially if the child or youth does not have a loving, nurturing relationship with at least one parent. Other risk factors include early maternal rejection and neglect and abuse.

Table 9.3 Examples of Suicide Warning Signs

Table 9.3 Examples of Suicide Warning Signs

Behavior	Manifestations
Quiet, withdrawn, few friends	Often not recognized because the individual is not noticed and makes no obvious trouble.
Changes in behavior	Personality changes—e.g., from friendliness to withdrawal, lack of communication, and sad and expressionless appearance, or from a quiet demeanor to acting out and troublemaking.
Increased failure or role strain	Often pervasive in school, work, home, friends, and love relationships, but often manifested clearly in school pressures for young people.
Recent family changes	Illness, job loss, increased consumption of alcohol, poor health, etc.

Behavior	Manifestations
Recent loss of a family member	Death, divorce, separation, or someone leaving home.
Feelings of despair and hopelessness*	Shows itself in many forms, from changes in posture and behavior to verbal expression of such feelings.
Symptomatic acts	Taking unnecessary risks, becoming involved in drinking and drug abuse, becoming inappropriately aggressive or submissive, giving away possessions.
Communication*	Such statements as “Life is not worth living,” “I’m finished,” “Might as well be dead,” or “I wish I were dead.”
Presence of a plan*	Storing up medication, buying a gun.

* To be viewed with heightened concern.
Source: Adapted from the Crisis Center, *Ten Behavioral Suicide Warning Signs* (Birmingham, AL: n.d.).

Poverty has been shown to be a significant risk factor for the development of emotional or behavioral disorders, as it often translates into increased family stress, poor health care, underachievement, and other negative outcomes. The United States has one of the highest poverty rates of all developed countries (Children’s Defense Fund, 2018). Although emotional and behavioral disorders occur among all socioeconomic classes, children who live in poverty may be at especially high risk (Kauffman & Landrum, 2018).

child maltreatment The neglect and/or physical, emotional, or sexual abuse of a child.

Child maltreatment is often associated with a number of emotional or behavioral disorders (Wicks-Nelson & Israel, 2015). Child maltreatment has been linked to internalizing disorders such as depression and externalizing disorders such as conduct disorders (Kauffman & Landrum, 2018). Child maltreatment includes neglect, physical abuse, sexual abuse, and emotional abuse. Table 9.4 describes these four main types of child maltreatment. As a teacher, your role is critical in identifying and reporting your suspicions of child maltreatment to law enforcement and social service agencies.

It is important to remember that no one cause or single event in an individual's life directly contributes to the development of emotional or behavioral disorders; rather, it is the result of a complex, multidimensional interaction of various risk factors that may lead to the development of maladaptive and other challenging behaviors. The greater the number of risk factors and the longer the child is exposed, the greater the likelihood of long-term destructive consequences. Still, we caution that "causality in the world of emotional and behavioral disorders is rarely linear; it rarely proceeds unambiguously from event A to outcome B" (Oswald, 2003, p. 202). Figure 9.1 portrays one possible pathway to long-term and destructive outcomes.

Table 9.4 Four Main Types of Child Maltreatment

Table 9.4 Four Main Types of Child Maltreatment

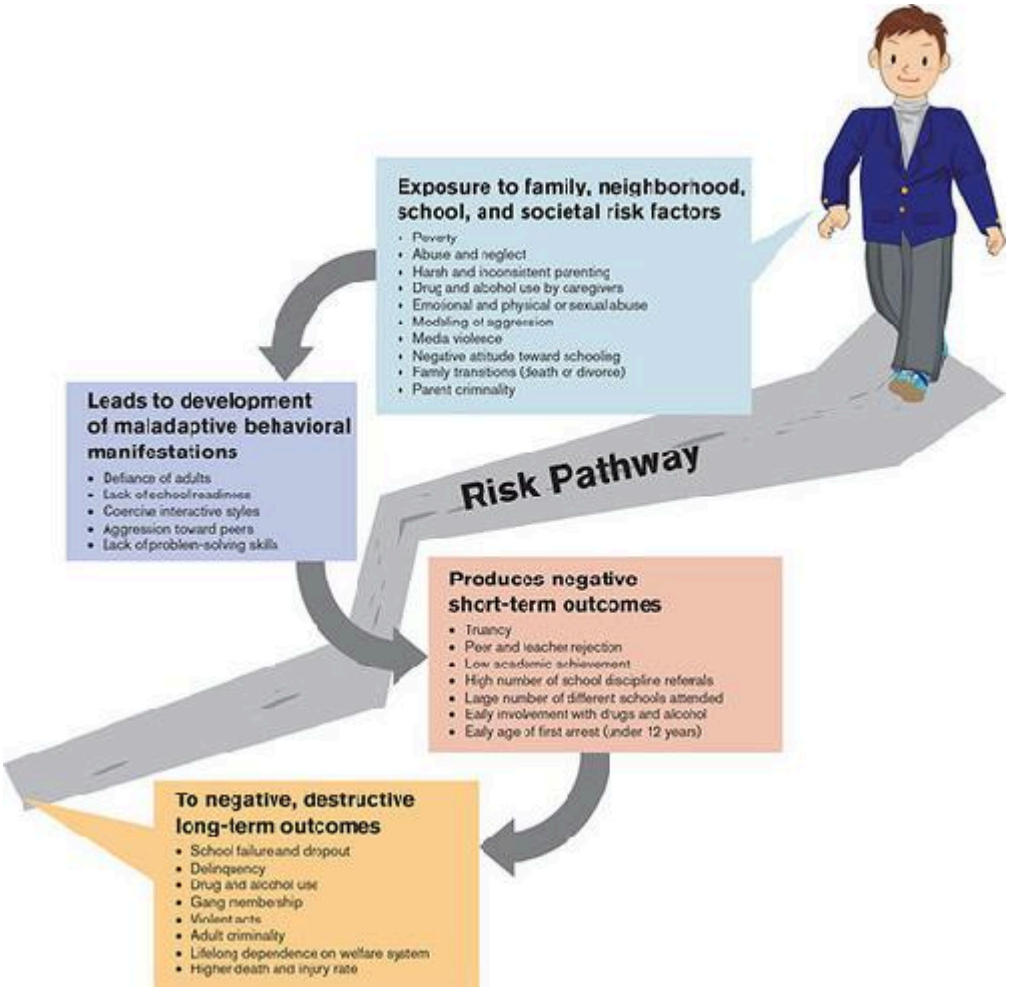
Term	Definition
Physical abuse	Characterized by the infliction of physical injury as a result of punching, beating, kicking, biting, burning, shaking, or otherwise harming a child. The parent or caretaker may not have intended to hurt the child; rather, the injury may have resulted from overdiscipline or physical punishment.

Term	Definition
Child neglect Physical neglect Educational neglect Emotional neglect	Characterized by failure to provide for the child's basic needs. Neglect can be physical, educational, or emotional. Includes refusal or delay in seeking health care, abandonment, expulsion from the home or refusal to allow a runaway to return home, and inadequate supervision. Includes the allowance of chronic truancy, failure to enroll a child of mandatory school age in school, and failure to attend to a special educational need. Includes such actions as marked inattention to the child's need for affection, refusal or failure to provide needed psychological care, spousal abuse in the child's presence, and permission of drug or alcohol use by the child. The assessment of child neglect requires consideration of cultural values and standards of care as well as recognition that the failure to provide the necessities of life may be related to poverty.
Sexual abuse	Includes fondling a child's genitals, intercourse, incest, rape, sodomy, exhibitionism, and commercial exploitation through prostitution or the production of pornographic materials. Many experts believe that sexual abuse is the most underreported of child maltreatment because of the "conspiracy

Term	Definition
	of silence” that so often characterizes these cases.
Emotional abuse (psychological abuse/verbal abuse/mental injury)	Includes acts of omission by the parents or other caregivers that have caused, or could have caused, serious behavioral, cognitive, emotional, or mental disorders. In some cases of emotional abuse, the acts of parents or other caregivers alone, without any harm evident in the child’s behavior or condition, are sufficient to warrant Child Protective Services intervention.

Source: Based on 42 U.S.C. § 5101 *et seq.* Child Abuse Prevention and Treatment Act. Public Law 101–36, 2003.

Figure 9.1 A Path to Long-Term Negative Outcomes for At-Risk Children and Youth


Exposure to family, neighborhood, school, and societal risk factors
• Poverty
• Abuse and neglect
• Harsh and inconsistent parenting
• Drug and alcohol use by caregivers
• Emotional and physical or sexual abuse
• Modeling of aggression
• Media violence
• Negative attitude toward schooling
• Family transitions (death or divorce)
• Parent criminality
Leads to development of maladaptive behavioral manifestations
• Defiance of adults
• Lack of school readiness
• Coercive interactive styles
• Aggression toward peers
• Lack of problem-solving skills
Risk Pathway
Produces negative short-term outcomes
• Truancy
• Peer and teacher rejection
• Low academic achievement
• High number of school discipline referrals
• Large number of different schools attended
• Early involvement with drugs and alcohol
• Early age of first arrest (under 12 years)
To negative, destructive long-term outcomes
• School failure and dropout
• Delinquency
• Drug and alcohol use
• Gang membership
• Violent acts
• Adult criminality
• Lifelong dependence on welfare system
• Higher death and injury rate

Source: Redrawn from H. Walker and J. Sprague, "The Path to School Failure, Delinquency, and Violence: Causal Factors and Some Potential Solutions," *Intervention in School and Clinic*, *35*(2), 1999, p. 68.

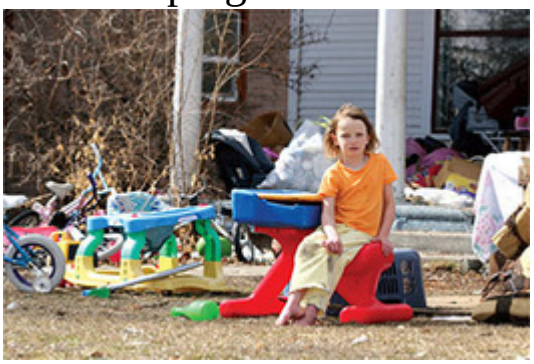
Prevention of Emotional or Behavioral Disorders

How do we prevent the onset of emotional or behavioral disorders? How do we minimize the risk of negative long-term outcomes for those students who do develop these disorders? This section will describe two bodies of research focusing on the prevention of emotional and behavioral disorders among children and youth.

Research on Resiliency

How do we explain the fact that some children and youth, despite the most adverse circumstances, do not develop emotional or behavioral disorders? How is it that these resilient individuals become healthy, well-adjusted adults? Janas (2002) and Henderson and Milstein (2002) identified four attributes of resilient children. First, resilient children appear to be socially competent; they are adept at establishing and maintaining positive relationships with both peers and adults. Second, resilient children have excellent problem-solving skills; they seek resources and help from others. Third, resilient children are autonomous; they have a strong identity, are able to act independently, and exhibit self-worth and self-confidence. Finally, resilient children develop clear goals and high aspirations; they see their futures as hopeful and bright. In essence, resiliency serves as a buffering agent against adverse risks and situations (Lerner & Johns, 2015).

Children who live in poverty may be at especially high risk for developing emotional or behavioral disorders.



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What are the implications of this research for you as an educator? Resilient adults often report that, as children, they established a close, loving relationship with a supportive adult; many times, these adults were their teachers. Just one loving, caring relationship with an adult can foster

resiliency in a student who is at risk for developing emotional or behavioral disorders, and thus possibly help prevent negative long-term outcomes. Research (Abelev, 2009) suggests that children who evidence resiliency do not experience long-term negative consequences from exposure to environmental risk factors. Intervention programs are currently focusing on developing resilient behaviors in children who are at risk (Scheuermann & Hall, 2016; Singer, Maul, Wang, & Ethridge, 2017). Ginsburg (2015) recently identified seven interrelated components that he believes are critical to the development of resiliency in children. These elements are characterized as the 7 Crucial Cs: competence, confidence, connection, character, contribution, coping, and control. These ingredients are seen as the foundational building blocks of resilient behavior.

Research on Positive Behavioral Support

Educators have many approaches at their disposal for responding to students who exhibit problematic behavior in the classroom. The traditional school response has been punishment, which often includes reactive responses such as reprimands, corporal punishment, suspension, and even expulsion from school. The behaviors of children with emotional or behavioral disorders are often so chronic and intense that these children are at high risk for receiving significant amounts of punishment. Although punishment will often reduce undesirable behavior, it is generally regarded as an ineffective and unproductive behavior reduction strategy (Bambara, Janney, & Snell, 2015; Kauffman & Landrum, 2018; Scheuermann & Hall, 2016).

Despite its ineffectiveness, punishment is still very common in our schools. A contemporary alternative strategy for responding to problematic behavior is **positive behavioral support**. This is a schoolwide approach designed to prevent problem behaviors before they occur and, when they do occur, to intervene early to prevent them from escalating further. The idea is to respond *proactively* rather than *reactively*, which is typical of punishment (Scheuermann & Hall, 2016). Positive behavioral support can be described as a systematic, evidence-based, problem-solving intervention strategy for dealing with challenging behaviors. Sugai and his colleagues (Sugai, Simonsen, & Horner, 2008) define positive behavioral support as

positive behavioral support An alternative approach to punishment; a schoolwide, proactive way of addressing problematic behaviors.

> a data-driven, team-based framework or approach for establishing a continuum of effective behavioral practices and systems that (a) prevents the development or worsening of problem behavior and (b) encourages the teaching and reinforcement of prosocial expectations and behavior across all environments for all students by all staff. (p. 5)

A positive behavioral support model is designed to address the complexity of problematic behaviors through such efforts as promoting academic achievement; involving the family; emphasizing positive, nurturing relationships between students and staff; and identifying problematic behaviors *before* they become chronic and/or severe. This approach recognizes that problematic behaviors are often the result of both student and environmental variables (Scheuermann & Hall, 2016). PL 108–446 requires individualized education program (IEP) team members to consider using positive behavioral supports when addressing behaviors that impede the learning of a student with a disability and/or the learning of others. Positive behavioral support has been shown to be effective in decreasing as well as preventing problematic behaviors (Bambara et al., 2015; Menzies & Lane, 2011; Simonsen et al., 2012).

The focus of the positive behavioral support model is prevention. The prevention model depicted in Figure 9.2 identifies three critical levels of prevention. The goal of the schoolwide intervention team at the **primary prevention** or universal level is to reduce the number of new cases of problem behavior. Examples of such prevention efforts include schoolwide social skills training programs, clearly identified and implemented incentives for positive behavior (such as giving points, tied to identified reinforcers, for following school and classroom rules), and manipulation of environmental factors that may be contributing to problematic behavior (such as a lack of sufficient adult supervision on the playground). This requires a team effort involving staff and teachers reinforcing expectations of appropriate behavior across multiple settings like hallways, classrooms, and restrooms (Kauffman & Landrum, 2018). The **secondary prevention** or targeted level is designed to minimize the possibility that students at high risk will engage in misbehavior. Examples of approaches at this level include targeting small groups of students with common concerns, such as those who have experienced significant losses (death of a parent or sibling, parental divorce) and those who need more intensive instruction in specific areas (social skills, academic tutoring, conflict resolution). The third and most intensive level of prevention is **tertiary prevention**, which includes interventions designed for the individual student. Examples of this level of prevention include the development and implementation of a token

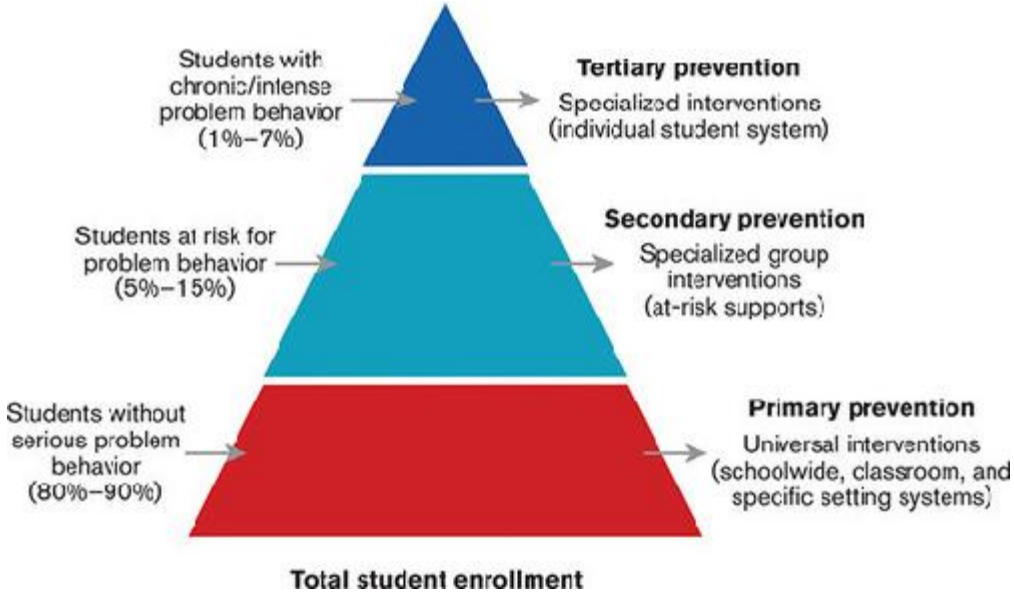
economy, individual counseling, and individually tailored self-monitoring programs. The purpose of tertiary prevention is to provide appropriate supports and interventions for students with chronic and intensive problem behaviors, thereby assisting them to engage in more appropriate and productive behaviors.

primary prevention Activities aimed at eliminating a problem or condition prior to its onset; may also refer to reducing the number of new instances of problematic behavior.

secondary prevention Efforts focusing on minimizing or eliminating potential risk factors in regard to persons with emotional or behavioral disorders; refers to minimizing the possibility that maladaptive or inappropriate behaviors will occur.

tertiary prevention Efforts that attempt to limit the adverse consequences of an existing problem while maximizing a person's potential; in regard to persons with emotional or behavioral disorders, refers to an intense level of intervention using strategies and supports designed for individuals with chronic and intense behavior problems.

Figure 9.2 Levels of Prevention


Students with chronic/intense problem behavior (1%–7%)
Tertiary prevention
Specialized interventions (individual student system)
Students at risk for problem behavior (5%–15%)
Secondary prevention
Specialized group interventions (at-risk supports)
Students without serious problem behavior (80%–90%)
Primary prevention
Universal interventions (schoolwide, classroom, and specific setting systems)
Total student enrollment

Source: Adapted from G. Sugai, R. Horner, G. Dunlap, M. Hieneman, T. Lewis, C. Nelson, et al., *Applying Positive Behavior Support and Functional Assessment in Schools* (Washington, DC: Office of Special

Education Programs, Center on Positive Behavioral Interventions and Supports, 1999), p. 11.

Characteristics of Children and Youth With Emotional or Behavioral Disorders

Children and youth with emotional or behavioral disorders are, as we have seen, an extremely heterogeneous population; consequently, the characteristics they display in the classroom are highly diverse. Not every student with emotional or behavioral disorders will exhibit all of the characteristics described here; rather, each student will be unique in terms of both strengths and needs.

Learning Characteristics

Although, intellectually, students with emotional or behavioral disorders may include individuals who are identified as gifted and those with an intellectual disability, a consistent finding of research has been that pupils with emotional or behavioral disorders typically score in the low to average range on measures of intelligence (Kauffman & Landrum, 2018).

A major concern among educators is the chronic school failure, despite about average intellectual ability, encountered by many of these students. Pupils with emotional or behavioral disorders typically experience significant academic deficits. Many of these students perform one or more years below grade-level expectations (Garwood, Brunsting, & Fox, 2014; Nicholson, 2014). Researchers report that individuals with emotional or behavioral disorders fare much worse than average in terms of grades, grade retention, high school graduation rates, dropout rates, and absenteeism (Mihalas, Morse, Allsopp, & McHatton, 2009; Wagner & Davis, 2006). It is uncertain whether students with emotional or behavioral disorders experience academic difficulty because of a lack of motivation or maladaptive behaviors, especially those associated with externalizing disorders; regardless, these pupils are at very high risk for poor academic performance and subsequent school failure (Kauffman & Landrum, 2018; Smith, Polloway, Taber-Doughty, Patton, & Dowdy, 2016).

Social Characteristics

Perhaps the most salient characteristic of students with emotional or behavioral disorders is their difficulty building and maintaining satisfactory interpersonal relationships. Many of these children, especially those exhibiting aggressive behavior, often experience rejection by both peers and adults. Moreover, it appears that the presence of aggressive behavior is a major predictor of future delinquency and incarceration, particularly if it appears in early childhood. Research on adolescents with emotional or behavioral disorders suggests high rates of incarceration for this population (Mihalas et al., 2009).

Language/Communication Characteristics

Over the years, researchers have noted that expressive, receptive, and pragmatic language deficits (the social use of language) appear to be relatively common in individuals with emotional or behavioral disorders (Smith et al., 2016). Individuals with emotional or behavioral disorders typically use fewer words per sentence, have difficulty staying on a topic, and use language that is inappropriate to social conversation. It is believed that these language impairments contribute significantly to the challenging and disruptive behaviors common in some students with emotional or behavioral disorders (Kauffman & Landrum, 2018).

Assessing Students With Emotional or Behavioral Disorders

As an educator, you will encounter many challenging student behaviors. These behaviors may puzzle you, and you may experience difficulty differentiating between behaviors that are “disturbing” and those that are “disturbed.” Your ability to make this distinction is crucial if students with emotional or behavioral disorders are to be identified and appropriately served in a timely manner. Some children, particularly those with externalizing disorders, are hard to overlook because their behaviors result in considerable havoc and disruption in the classroom. Other students may exhibit behaviors that are more difficult to judge. For example, because the behaviors of young children change so quickly, you may find it difficult to determine whether their problematic behaviors are indicative of an emotional or behavioral disorder or are simply developmentally appropriate actions. Finally, you may overlook the behaviors of pupils with internalizing disorders because these behaviors typically do not disrupt the learning process. Your ability to identify potentially problematic behaviors represents an important first step in the assessment process.

Assessment Strategies

The assessment of children and youth with emotional or behavioral disorders is a complex process that necessitates a multimethod, multisource approach. Assessment strategies typically include a variety of methods and instruments (for example, rating scales, interviews, classroom observations) gathered from multiple sources or informants (the student, teachers, parents, peers). Each strategy has its own unique advantages and disadvantages. A multimethod approach is essential because of the transient nature of behavior, developmental variations, and the variability of cultural and social standards of normalcy. Data from these multiple sources are typically aggregated in order to obtain a complete and authentic picture of the student’s strengths as well as areas of need.

Recent Trends in Assessment of Students With Emotional or Behavioral Disorders

Over the years, three initiatives have strengthened the assessment process as it relates to students with emotional or behavioral disorders: person-centered planning, strength-based assessment, and functional behavioral assessment.

In **person-centered planning** (Austin & Wittig, 2013) the IEP team, including the parents, the student, and other stakeholders, begins the IEP process by creating a "vision" for the student's future. The student's input is vital to the success of this process. Typically, this vision includes an analysis of the individual's strengths, preferences, needs, and needed supports. By collaboratively articulating this vision *before* developing the IEP, the team seeks to address the pupil's long-term goals and aspirations. Person-centered planning forces IEP team members to look beyond the "next year" and to consider long-term solutions and interventions that will successfully address the student's "vision" and ensure a self-directed life upon leaving school.

> **person-centered planning** Useful when developing a student's individualized education program; creates a vision for the pupil's future based on an analysis of his or her strengths, needs, and preferences.

Strength-based assessment is a reaction against the deficit-oriented model common in traditional assessment approaches (Smith et al., 2016). It is based on the assumption that all children and youth have strengths and that deficits are not static but, rather, viewed as opportunities to learn. For example, behavior rating scales, which are commonly used throughout the assessment process, often include only items that identify behavioral deficits; they do not address the student's behavioral strengths. Epstein (2002) defines strength-based assessment as

strength-based assessment An assessment model that looks at an individual's strengths, abilities, and accomplishments rather than focusing on his or her deficits.

> the measurement of the emotional and behavioral skills, competencies, and characteristics that create a sense of personal accomplishment; contribute to satisfying relationships with family members, peers, and adults; enhance one's ability to deal with adversity and stress; and promote one's personal, social, and academic development. (p. 3)

Functional behavioral assessment acknowledges that pupils engage in inappropriate behavior for multiple reasons. Likewise, several factors often influence or trigger a student's misbehavior. These precursors or antecedents to problematic behaviors may include (1) physiological factors such as illness, medication side effects, or fatigue; (2) classroom environmental factors such as seating arrangements, noise levels, or disruptions; and (3) curriculum and instructional factors such as assignments that are too difficult or unclear directions. By identifying the antecedents to problematic behavior, the teacher can then take a preventive or proactive approach to intervention. For example, by knowing that assignments are too difficult for the learner, the teacher can provide appropriate adaptations to facilitate the pupil's success and prevent acting-out behavior from ever occurring.

functional behavioral assessment A behavioral strategy that seeks to determine the purpose or function that a particular behavior serves—what is occasioning and maintaining the behavior.

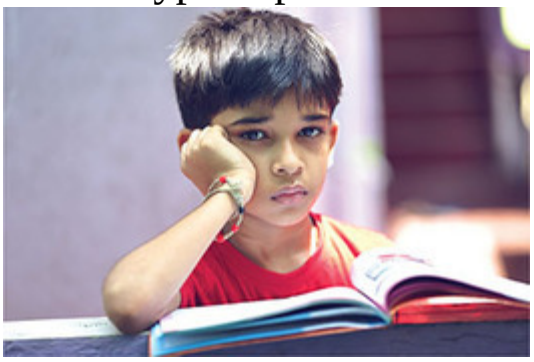
The consequences that follow an individual's behavior are also important factors to consider when choosing appropriate interventions for children and youth with emotional or behavioral disorders. A student who finds work too difficult, for example, may act out in an effort to avoid or escape the task. If the pupil is successful in avoiding the task, he or she is then reinforced for this acting-out behavior. As a teacher, you need to be aware

of your own possible role in the maintenance or escalation of a student's misbehavior. The consequences that follow a student's actions may inadvertently reinforce the very behaviors you want to decrease.

Functional behavioral assessment has historically been used with individuals with severe developmental disorders. Now, however, due to PL 108–446, it is a required component of the assessment process for students with disabilities who present behavioral challenges.

A functional behavioral assessment examines the circumstances surrounding the occurrence and/or nonoccurence of the challenging behavior, seeking to identify variables and events that are consistently present in those situations. The student's behavior during these times is examined to determine the function of the challenging behavior and to identify which variables might be maintaining it (Alberto & Troutman, 2017). By understanding and manipulating the variables that precede and follow misbehavior, educators and parents can design interventions that will assist them in developing and implementing positive behavioral supports for students. In fact, a functional behavioral assessment is considered to be a cornerstone or foundation of positive behavioral supports (Alberto & Troutman, 2017; Chandler & Dahlquist, 2015; Lerner & Johns, 2015; Scheuermann & Hall, 2016).

Many students with emotional or behavioral disorders receive educational services in settings that segregate them from their typical peers.



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Identification of antecedents and consequences is directly tied to the development of a **behavior intervention plan**, required by PL 108–446 for students with disabilities who exhibit problematic behaviors in school. In developing this plan, the IEP team must consider the use of positive behavioral interventions, strategies, and supports to address the problematic behaviors. In effect, the IEP team must develop a proactive plan of intervention. This approach contrasts with more traditional approaches to student discipline, which are primarily reactive and punitive in nature.

behavior intervention plan A plan required by Public Law 105–17 for students with disabilities who exhibit problematic behavior; a proactive intervention approach that includes a functional behavioral assessment and the use of positive behavioral supports.

Educational Considerations

Children and youth with emotional or behavioral disorders present unique challenges in terms of educational placement and programming. Interventions for students with emotional or behavioral disorders can be divided into three broad categories: physical environment interventions, academic and instructional interventions, and behavioral and cognitive-behavioral interventions. These categories represent an array of interventions reflecting various conceptual and theoretical models and include a range of primary, secondary, and tertiary intervention approaches.

Where Are Students With Emotional or Behavioral Disorders Educated?

In passing the 2004 amendments to IDEA, Congress voiced its preference that students with disabilities be educated in normalized educational environments. Clearly, this preference has not been fully implemented for students with emotional or behavioral disorders, who represent one of the more segregated groups of all students with disabilities. Currently, over one third (35.3%) of students with emotional or behavioral disorders receive a special education and related services in environments that segregate them from their typical peers for all or part of the school day (U.S. Department of Education, 2018b). During the 2016–2017 school year, approximately five out of ten students (47.2%) with emotional or behavioral disorders were receiving a special education in the general education classroom (see Figure 9.3). Yet, relative to other students with disabilities, children and youth with emotional or behavioral disorders are more likely to be educated in separate schools, residential settings, home/hospital settings, or other environments (17.1%).

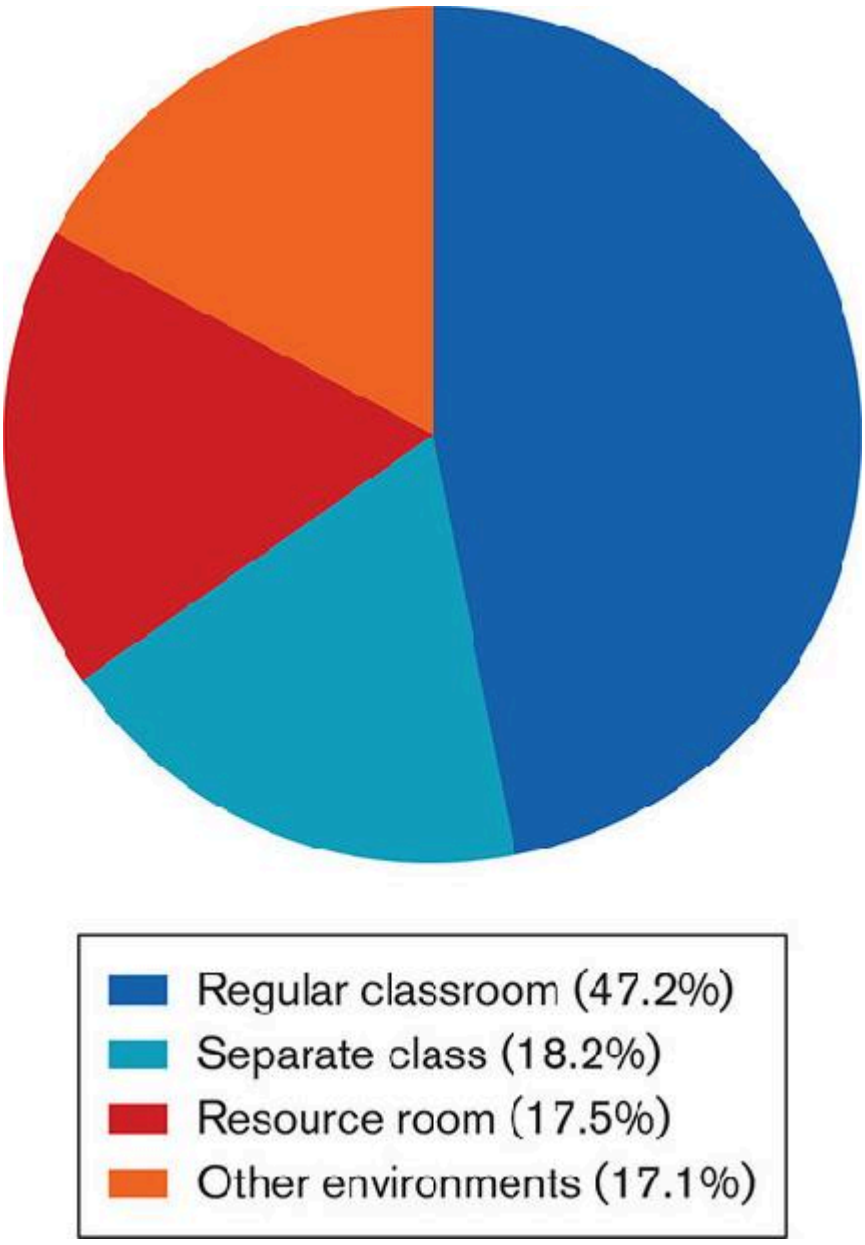
Physical Environment Interventions

A number of proactive interventions related to management of the physical environment are appropriate for use with students with emotional or behavioral disorders. Most of these interventions are at the primary level of prevention; that is, they are appropriate for *all* students, not just those with emotional or behavioral disorders.

Time management involves proactive interventions such as maximizing student engagement time, scheduling appropriately, and teaching time management skills. Because students with emotional or behavioral disorders experience considerable academic failure, teachers should endeavor to maximize the time spent in instruction and make every effort to keep their students on task as much as possible. “One of the most powerful tools for improving learning is careful use of instructional time . . . effective time management becomes an essential part of designing and providing effective instruction” (Vaughn & Bos, 2015, p. 23). This means that you should make every effort to prepare for instruction in advance, minimize classroom interruptions, and interact substantively with students to keep them focused on the task. By creating and developing effective schedules, teachers can minimize the likelihood of disruptive behavior. For suggestions on effective scheduling, see the accompanying Strategies for Effective Teaching and Learning feature.

time management A proactive intervention strategy that attempts to maximize student engagement time and appropriately schedule class activities in addition to instruction in time management skills.

Figure 9.3 Educational Placements of School-Age Students With Emotional or Behavioral Disorders



Note: Figure represents percentage of enrollment of students ages 6–21 with emotional or behavioral disorders during the 2016–2017 school year. Other environments represent placement in a separate school, residential facility, homebound/hospital environment, correctional facilities, or parentally placed in private schools.

Information based on data from forty-nine states, the District of Columbia, Puerto Rico, Bureau of Indian Education schools, and outlying areas. Data for Wisconsin not included.

Source: U.S. Department of Education. (2018). *Fortieth annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2018.* Washington, DC: U.S. Government Printing Office.

Educators should also teach time management skills directly to students. Strategies include requiring students to maintain calendars on which they list their assignments and activities, helping students establish and prioritize goals for assignment completion, and allocating time during the school day to help students develop timelines and plan for completing assignments (Friend & Bursuck, 2019; Salend, 2016).

Closely related to time management is **transition management**. Transition times are those periods during the day when students are moving from one activity to another, such as changing classes, moving from one assignment to another, or beginning or ending the school day. Considerable academic learning time is wasted by poorly managed transitions (Friend & Bursuck, 2019). Transitions also create situations in which disruptive student behavior is increased. According to Polloway, Patton, Serna, and Bailey-Joseph (2018), teachers can minimize disruptive behavior during transition times by (1) giving students specific directions about how to move from one activity to another; (2) establishing, teaching, and having students rehearse transition routines; and (3) rewarding students for making orderly and smooth transitions.

transition management The regulating of students as they move from one assignment to another or from one activity to another; a proactive behavioral intervention strategy.

Strategies for Effective Teaching and Learning
Suggestions for Effective Scheduling

- Place the class schedule in a prominent location.
- Intersperse more challenging tasks with less difficult ones.
- Alternate lecture, discussion, and movement types of activities.
- Adjust the length of activities and/or the schedule to meet the attention, developmental, and ability level of students.
- Review and discuss the schedule frequently with students.
- Inform students in advance of any schedule changes.
- Schedule routine opening and closing activities each day.

Source: Adapted from E. Polloway, J. Patton, L. Serna, and J. Bailey-Joseph, *Strategies for Teaching Learners With Special Needs*, 11th ed. (New York, NY: Pearson Education, 2018); S. Salend, *Creating Inclusive Classrooms*, 8th ed. (Upper Saddle River, NJ: Pearson Education, 2016).

Teachers can also use cues or signals to help students make transitions successfully, thereby minimizing disruptions. Examples include verbal cues, physical cues (light blinking, buzzer sounding, hand gestures), and creative dismissal cues ("All students with green eyes may line up for lunch"). Examples of two cueing systems (one picture cue and one physical cue) are shown in Figure 9.4. These systems, if taught and routinely used with students, may assist teachers in helping students to settle down quickly and get started on the next activity or assignment.

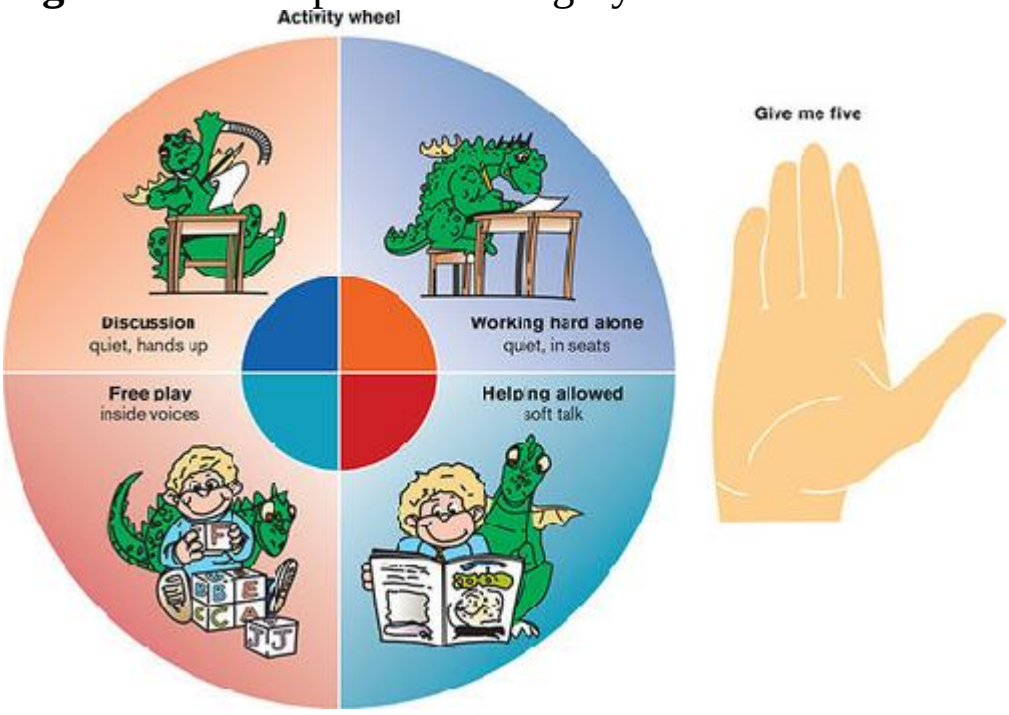
Proximity and movement management includes making sure that high-traffic areas are free from congestion, developing clear procedures for the use of classroom space and equipment, and ensuring sufficient separation of students to minimize inappropriate behavior. Teachers can facilitate appropriate student behavior via proximity and movement management by

proximity and movement management A classroom management strategy focusing on the effective use of classroom space and the arrangement of the physical environment as a means of minimizing disruptive behavior.

- placing the desks of disruptive students near the teacher's desk or main work area;
- interacting briefly and frequently with all students;
- moving around the classroom in unpredictable ways; and

- providing praise, reprimands, and consequences when in close physical proximity to pupils (Salend, 2016).

Figure 9.4 Examples of Cueing Systems



Source: C. Webster-Stratton, *How to Promote Children's Social and Emotional Competence* (Thousand Oaks, CA: Sage, 1999), pp. 56, 149. Copyright © 1999 by Sage Publications, Inc. Reprinted by permission of Sage Publications, Inc.

Classroom arrangement includes the physical layout of the classroom as well as classroom décor. Physical layout includes student seating and grouping arrangements; location of materials, equipment, and personal items; removal of tempting or dangerous items; and location of the teacher's desk. The following suggestions have been made regarding seating and grouping arrangements:

classroom arrangement The physical layout of the classroom and its décor; a proactive intervention technique designed to minimize disruptions while increasing pupil engagement.

- Students should be seated in locations that provide teachers with easy visual and physical access at all times (Salend, 2016).
- Savage (1999) recommends using rows for direct instruction, circular patterns for discussions, and clustered arrangements for group work.
- Place disruptive students in the “action zone” in the classroom. The action zone consists of seats across the front of the classroom and down the center. Research reviewed by Savage (1999) suggests that students seated in the action zone attend more to tasks, participate more, have higher levels of achievement, and demonstrate more positive attitudes.
- Disruptive students should be seated near the teacher to allow for proximity control and frequent monitoring.

Teachers can also minimize the likelihood of disruptive behavior by removing items that are physically tempting, distracting, or dangerous. The location of the teacher’s desk may influence student behavior. The teacher’s desk should have a barrier-free view of all students and be positioned to allow the teacher to move quickly if a situation necessitates (Salend, 2016).

Attractive classrooms influence students’ behavior in positive ways.

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For students who need a quiet, distraction-free place to study, the use of study carrels may be helpful. If study carrels are used, teachers should make sure their use is continuously monitored and be cautious not to overuse

them as they may isolate or stigmatize students if used excessively (Salend, 2016).

Academic and Instructional Interventions

Positive behavioral supports include providing effective academic content and instruction to students with emotional and behavioral disorders (Scheuermann & Hall, 2016). Although there has been much research on effective social/emotional behavioral interventions for students with emotional or behavioral disorders, the research on effective academic curriculum and instructional practices for these students is somewhat limited.

The paucity of research on academic and instructional interventions is unfortunate given the high rates of academic failure experienced by these students (Hirsh, Lloyd, & Kennedy, 2014; Smith et al., 2016). One significant way in which educators can help to minimize these negative long-term outcomes is through the provision of a sound academic program. There is a strong correlation between poor academic achievement and emotional and behavioral disorders. The hope is that if educators can design effective academic interventions that strengthen the achievement levels of these pupils, inappropriate behaviors in the classroom will diminish. Academic achievement may serve as a critical protective or preventive factor for students with emotional or behavioral disorders (Hirsh et al., 2014; Landrum, 2017).

Current thinking suggests that educators should have a primary focus on academic interventions rather than social/emotional/behavioral interventions. Effective academic interventions result not only in higher academic achievement but also in improved behavior (Kauffman & Landrum, 2018; Nicholson, 2014). According to Landrum (2017), effective instruction provides a foundation for both academic success and behavior management. To be successful, academic intervention must address two areas of concern: academic curriculum and instructional delivery. Academic curriculum includes the instructional programs or materials used by classroom teachers to teach specific content while instructional delivery refers to teaching strategies and tactics.

Academic Curriculum

In many respects, the academic curriculum for students with emotional or behavioral disorders mirrors that of their typical classmates. Because this population varies widely in achievement and ability levels, educators must adapt or modify the curriculum accordingly. PL 108–446 mandates that, to the maximum extent appropriate, students with disabilities have access to the general education curriculum. For students with emotional or behavioral disorders, this may necessitate appropriate supports and curriculum modifications. By incorporating students' interests into the curriculum, educators can enhance both the behavior and the academic engagement of these students. Thus, teachers should endeavor to design a curriculum that is both relevant and motivating for students with emotional and behavioral disorders.

Instructional Delivery

Instruction is a critical component in preventing behavior problems. How teachers instruct children and youth with emotional or behavioral disorders influences not only their academic performance but their behavior as well (Scheuermann & Hall, 2016). Three instructional strategies that typically benefit these students (and other learners) are mnemonics, self-monitoring strategies, and content enhancements.

Making Inclusion Work
Individuals With Emotional or Behavioral Disorders

One of the benefits of spending many years in special education has been the opportunity to vicariously ride the swinging pendulum regarding the inclusion of students with special needs. As a teacher, counselor, and coordinator, all in the field of special education, I have seen and experienced the continuum of inclusion from the worst of times to what I consider the beginning of the best of times. What a great opportunity we have to grant each and every student the right to success they so desperately desire and deserve.

My very first job was teaching students with emotional or behavioral disorders attending a separate special education school. Fourteen students, eleven boys and three girls, were brought by bus to our county school and somewhat thrown together in a self-contained classroom. The students' ages ranged from 14 through 21, and although they were diagnosed as having emotional or behavioral disorders, their disabilities and needs varied greatly. As a first-year teacher, survival was my objective, not teaching anyone to read or divide. Unfortunately, it was a terrifying, difficult year. As a teacher, I did not have the training or support needed to properly meet the needs of the students in my classroom. Students already typically deficient in social skills and academics were given scant opportunity for practice or success. In addition, there were virtually no positive peer role models within the classroom. I was discouraged because I knew we were letting these students down by separating them from the rest of the children. Needless to say, progress was minimal.

Fast-forward several years. I thankfully work in a society with an educational and legal system that now recognizes the benefits and need for inclusion of all students. It is a pleasure and honor to work with students and teachers preparing the way for meaningful inclusion of students. Not only do I get to work as a counselor and behavior interventionist with many students who have special needs, but I also teach at the university level, training preservice general education and special education teachers. Whether I am in a public school or university classroom, I seize the occasion to champion the benefits of inclusion for students and teachers alike.

A predominant concern teachers have shared with me over the years is that they are willing to welcome most children with special needs into their classrooms if they are told how to include the students and what to do! The exception, however, is usually students with emotional or behavioral disorders. The majority of these students want to be in a safe environment, and they crave structure, consistency, and predictability. An attitude geared toward welcoming any student into a safe learning environment is half of the formula for successful inclusion. Students will know if they are welcome in your classroom. They will likely feel welcomed and safe if you are clear about your expectations, are consistent, and are well prepared. Avoid assuming the worst and that students "can't." Assume they "can" with careful planning and preparation. Say what you mean and always mean what you say—follow through.

Preparation is so very important and may include modification of the curriculum, teaching styles, and classroom management procedures and practices. Does this mean you must change everything you do for one student? Absolutely not. It does mean that having students with special needs in your classroom should give you cause to reflect on your personal teaching style, strategies, tolerance levels, expectations, procedures, and behavior management style. Reflection on your practices as a teacher will shed light on your readiness to include all students, and you will be well on your way to making preparations for students with special needs.

Although this may all sound a bit overwhelming, the best news is that you are not alone. Collaboration may very well be the biggest key to successful inclusion. You will have access to a host of wisdom, knowledge, and experience from the professionals with whom you work. Take advantage. Be proactive with teachers and parents and learn as much

about each student as possible. Access the special educators in your building and seek their knowledge regarding the special needs of your students. You may need to take the first step and ask for help. The special educator in your building may be hesitant as well, for fear of stepping on your turf. It is also important to establish your own relationship with the parents and well worth the effort to do so before the need arises to discuss a problem. Time spent getting to know each student personally is possibly the best investment. Once you know what interests a student, meaningful engagement in academics is more likely, and building of relationships will be easier. Collaborating and preplanning for the arrival of a student with special needs may mean the difference between success and failure for everyone.

—Teresa (Tracy) Teaff

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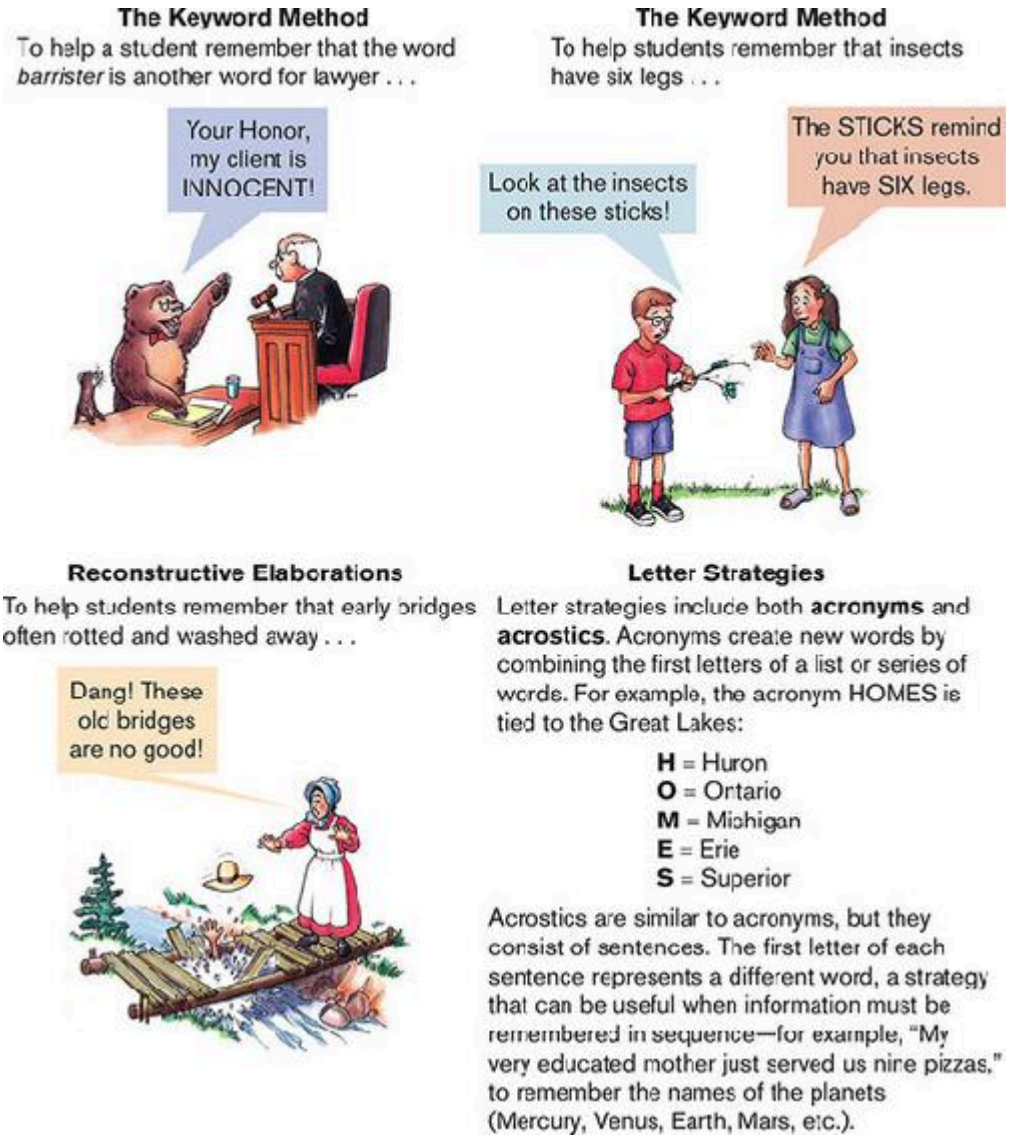
Mnemonic strategies are tools for helping students recall facts and relationships. Mnemonic strategies have been found to be extremely effective in promoting academic achievement among students with disabilities, including those with emotional or behavioral disorders (Scruggs & Mastropieri, 2000; Vaughn & Bos, 2015). There are many different types of mnemonic strategies; a few of these are illustrated in Figure 9.5.

mnemonic strategy A cognitive approach used to assist pupils in remembering material; the use of rhymes, pictures, acronyms, and similar aids to help in recall.

Figure 9.5 Examples of Mnemonic Strategies


The Keyword Method
To help a student remember that the word *barrister* is another word for lawyer . . .
Your Honor, my client is INNOCENT!
The Keyword Method
To help students remember that insects have six legs . . .
Look at the insects on these sticks!
The STICKS remind you that insects have SIX legs.
Reconstructive Elaborations
To help students remember that early bridges often rotted and washed away . . .
Dang! These old bridges are no good!
Letter Strategies
Letter strategies include both **acronyms** and **acrostics**. Acronyms create new words by combining the first letters of a list or series of words. For example, the acronym HOMES is tied to the Great Lakes:
H = Huron
O = Ontario
M = Michigan
E = Erie
S = Superior
Acrostics are similar to acronyms, but they consist of sentences. The first letter of each sentence represents a different word, a strategy that can be useful when information must be remembered in sequence—for example, "My very educated mother just served us nine pizzas," to remember the names of the planets (Mercury, Venus, Earth, Mars, etc.).

Source: Adapted from M. Mastropieri and T. Scruggs, *Teaching Students Ways to Remember: Strategies for Learning Mnemonically* (Cambridge, MA: Brookline Books, 1990).

Self-monitoring strategies, such as assignment checklists and self-monitoring checklists, can be used to assist students with emotional or behavioral disorders. These strategies help students by providing the cues necessary to complete a task successfully. You may want to incorporate these strategies for all your students, not just those with emotional or

behavioral disorders. See Figure 9.6 for an example of an academic self-monitoring checklist.

self-monitoring strategy A behavioral self-control strategy; pupils compare their performance to a criterion, record their efforts, and obtain reinforcement if appropriate.

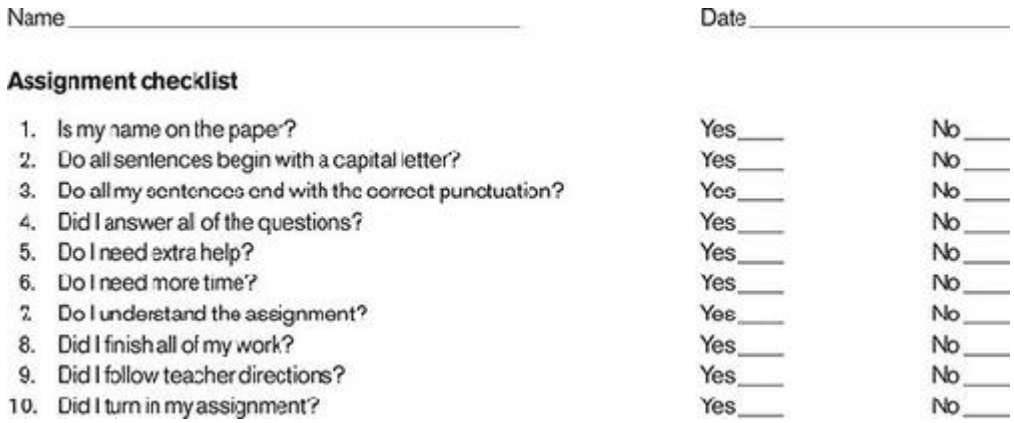
Content enhancements include graphic organizers, content diagrams, semantic maps, advance organizers, guided notes, and study guides. Content enhancements help students understand major concepts, ideas, and vocabulary in a manner that is conducive to knowledge acquisition, organization, and retrieval. These enhancements make explicit the content to be learned, link concepts together, and help students link new content to previously learned content.

content enhancement An instructional aid designed to assist pupils in understanding major concepts, ideas, and vocabulary in a way that aids the acquisition, organization, and recall of material.

Behavioral and Cognitive-Behavioral Interventions

Zirpoli (2016) recently identified two intervention approaches that have substantial support: behavior modification (applied behavior analysis) and cognitive-behavioral modification. Although these two intervention strategies share similar features, there is one primary difference. Whereas strict behavioral approaches rely on *external* sources of behavioral control, cognitive-behavioral approaches seek to promote students' *internal* control or self-regulatory behavior. See the accompanying Strategies for Effective Teaching and Learning feature for behavioral suggestions for increasing, decreasing, and acquiring new behaviors.

Figure 9.6 Example of an Academic Self-Monitoring Checklist



Name _____ Date _____

Assignment checklist

1.	Is my name on the paper?	Yes___	No___
2.	Do all sentences begin with a capital letter?	Yes___	No___
3.	Do all my sentences end with the correct punctuation?	Yes___	No___
4.	Did I answer all of the questions?	Yes___	No___
5.	Do I need extra help?	Yes___	No___
6.	Do I need more time?	Yes___	No___
7.	Do I understand the assignment?	Yes___	No___
8.	Did I finish all of my work?	Yes___	No___
9.	Did I follow teacher directions?	Yes___	No___
10.	Did I turn in my assignment?	Yes___	No___

Source: From "Self-Monitoring, Cueing, Recording, and Managing: Teaching Students to Manage Their Own Behavior" by M. McConnell, *Teaching Exceptional Children, 32*(2), p. 18. Copyright © 1999 by the Council for Exceptional Children. Reprinted with permission.

Strategies for Effective Teaching and Learning
Representative Behavioral Principles

Principles for Strengthening (or Increasing) Existing Behavior

Response increment principles include the following:

Principle 1: Positive Reinforcement Principle

Provide positive reinforcement immediately after desired behavior occurs.

Example: Praise the individual following task completion.
Principle 2: Premack Principle (First you work, then you play.)

Allow the student to engage in a favored activity immediately following the occurrence of the desired behavior.

Example: After completion of a disliked math assignment, permit the pupil to complete a favored activity such as putting a puzzle together.
Principle 3: Contingency Contracting Principle

Specify in writing the desired behavior and the positive consequences that will follow if the individual engages in the desired behavior.

Example: Allow the student to listen to preferred music following the observance of the desired behavior.

Principles for Developing New Behavior

Response acquisition principles include the following:

Principle 1: Successive Approximations Principle

Reward successive steps to the desired behavior.

Example: For problematic off-task behavior, first reward the student for staying on task for five minutes, then ten minutes, then fifteen minutes, and so on.

Principle 2: Modeling Principle

Allow the pupil to observe a prestigious person engaging in the desired behavior.

Example: For problematic handwriting behavior, have a peer demonstrate the correct letter formation and have the student model the formation.

Principle 3: Cueing Principle

To teach a student to engage in a particular behavior at a certain time, provide a cue or prompt just before the desired behavior is expected.

Example: Teacher and pupil mutually develop a signal to cue the student to begin a task.

Principle 4: Discrimination Principle

To teach the pupil to engage in a specific behavior under one set of circumstances but not another, help the individual only when his or her behavior is appropriate to the cue.

Example: Reinforce the use of an “inside” voice when the student is in the classroom but not on the playground.

Principles for Decreasing or Extinguishing Undesired Behavior

Response decrement principles include the following:

Principle 1: Extinction

Arrange conditions so that the pupil receives no reinforcement following the undesired behavior.

Example: Ignore talking-out behavior.
Principle 2: Reinforcement of Incompatible Behavior

Reinforce an alternative or desired behavior that is inconsistent with the undesired behavior.

Example: Reinforce on-task behavior to decrease the student's out-of-seat behavior.
Principle 3: Response Cost

Arrange conditions so that something the individual considers reinforcing is taken away when the undesired behavior occurs.

Example: Take away iPad privileges when a student hits another child.

Both behavioral and cognitive-behavioral interventions range from primary to tertiary levels of prevention. These interventions can also be placed on a continuum in terms of their intrusiveness and restrictiveness. The intervention ladder depicted in Figure 9.7 suggests that most students will respond to mildly intrusive and restrictive interventions and only a few will require more intensive and restrictive interventions. Teachers should attempt less intensive and restrictive interventions first and proceed to the next level only if these interventions are unsuccessful.

One example of a mildly intrusive intervention strategy is classroom rules and routines. Students may misbehave because they do not understand the behavior expected of them. For example, a student may not understand that talking out is inappropriate during teacher-led presentations but may be permitted during cooperative learning activities. Teachers can do much to

prevent misbehavior in their classrooms by making their expectations clear. This means that teachers should pay particular attention to the establishment and consistent enforcement of classroom rules and routines. Classroom rules provide structure for acceptable and unacceptable student behaviors (Vaughn, Bos, & Schumm, 2018); for guidelines on establishing classroom rules, see the accompanying Strategies for Effective Teaching and Learning feature. Classroom routines are those procedures that occur periodically throughout the school day—for example, sharpening pencils, class dismissal, turning in assignments, or making up work during absences—that allow the classroom to run smoothly and efficiently.

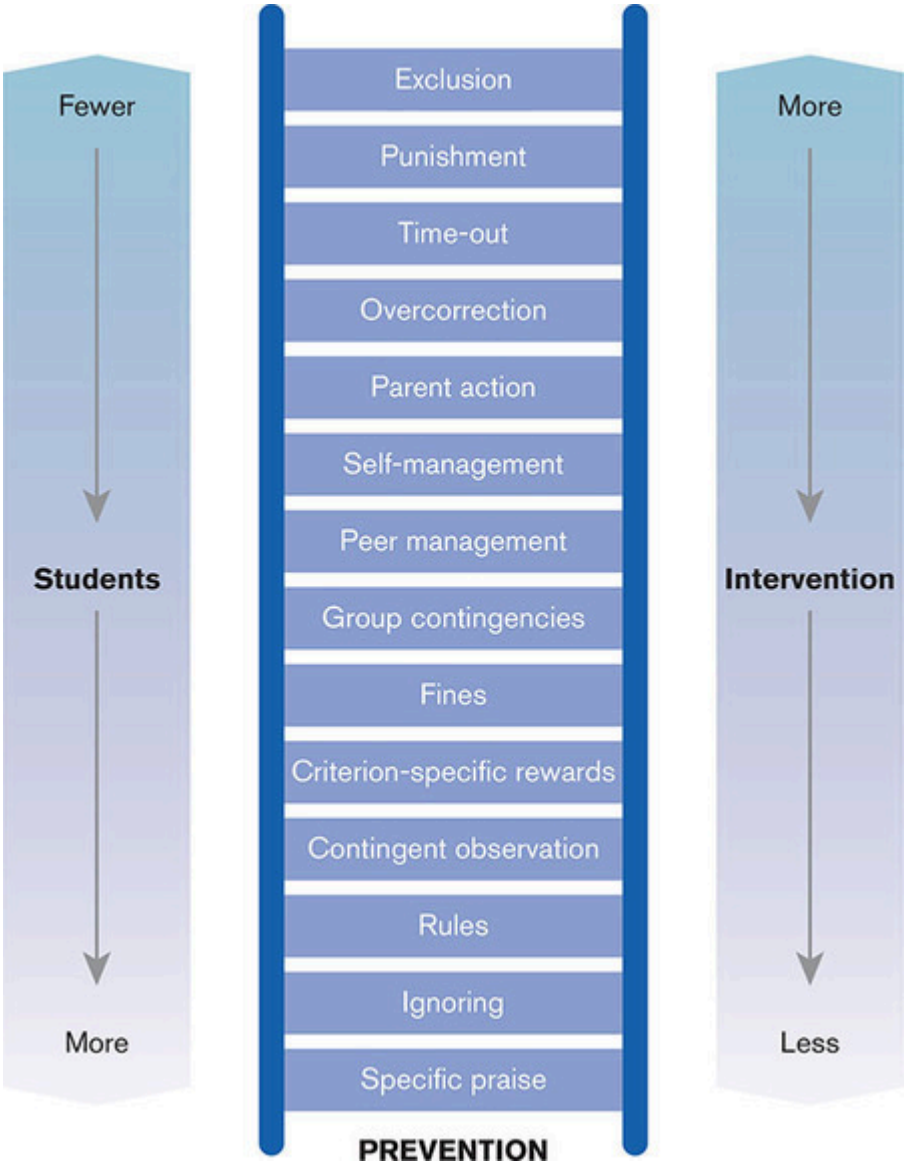
Other Interventions

The behavior characteristics of students with emotional or behavioral disorders often necessitate that careful thought be given to the development and implementation of specialized intervention strategies. Three examples of these interventions include social skills training, interpersonal problem solving and conflict resolution, and management of behavioral crises at school.

Social Skills Training

Many students with emotional or behavioral disorders have difficulty interacting successfully with their peers, teachers, and other adults they daily encounter. Deficits in social skills can lead to alienation from peers, impaired interpersonal relationships, and academic failure in addition to difficulties with independent living in adulthood (Kauffman & Landrum, 2018; McGrath, 2014; Smith et al., 2016).

Figure 9.7 A Ladder of Intervention Strategies



Source: Adapted from D. Smith and D. Rivera, *Effective Discipline*, 2nd ed. (Austin, TX: Psycho-Educational Services, 2001), p. 17. Reprinted with permission.

Strategies for Effective Teaching and Learning Guidelines for Establishing Classroom Rules

- Keep the wording of rules simple and clear.

- Select the fewest possible rules (three to six).
- Use different rules for different situations.
- Rules should be stated behaviorally, and they should be enforceable.
- Rules should be stated positively.
- Rules should be reasonable.
- Specify consequences for both rule adherence and rule infraction, and provide consequences consistently.
- Give examples and nonexamples of each rule.
- Discuss the need for rules in the classroom.
- Check for student understanding of rules.
- Review rules regularly.
- Post the rules in a prominent location in the room.
- Obtain written commitments from students that they will follow the rules.

Source: Adapted from B. Burden, *Powerful Classroom Management Strategies* (Thousand Oaks, CA: Corwin Press, 2000); M. Kerr and C. Nelson, *Strategies for Managing Behavior Problems in the Classroom*, 6th ed. (Upper Saddle River, NJ: Pearson Education, 2010).

Social skills training can occur at any level of prevention—primary, secondary, or tertiary—and some professionals have called for the implementation of primary (schoolwide) social skills training programs and the infusion of social skills instruction into the curriculum (Bambara et al., 2015; Scheuermann & Hall, 2016). “The purpose of social skills training is to teach students a complex response set that allows them to adapt to the numerous problems that occur in social situations” (Vaughn & Bos, 2015, p. 89).

Social skills training often uses direct instruction to teach students appropriate social behaviors. It assumes that behavioral problems in the classroom reflect social skill deficits and that social skills are learned behaviors; consequently, they can be taught. Examples of these skills include correctly interpreting body language, receiving negative feedback, understanding the feelings of others, and maintaining a conversation (Vaughn & Bos, 2015). Social skills training attempts to develop pupils’ social competence. The end goal is to increase their social acceptance, friendship-making skills, and ability to participate successfully in school and community activities and functions.

social skills training Using direct instruction to teach students appropriate social behaviors; the goal is to increase individuals' social competency and acceptance.

The importance of teaching social skills to students with emotional or behavioral disorders cannot be overstated, as adequate social skills are critical precursors to academic instruction. Unless pupils have the basic social skills—asking for assistance, following directions, and adhering to classroom rules, routines, and procedures—attempts to teach academics to these students will be largely unsuccessful. Research on the effectiveness of social skills training has yielded mixed results (Scheuermann & Hall, 2016; Vaughn et al., 2018). Most of the concerns regarding this approach have centered on the generalization and maintenance of social skills. Although a student may be able to demonstrate a specific social skill during a role-playing situation, that same skill may not be demonstrated in more natural settings such as the classroom or playground. Careful planning of interventions with attention directed toward generalization of skills becomes crucial (Carter & Hughes, 2013).

Interpersonal Problem Solving and Conflict Resolution

Closely related to social skills training is the teaching of interpersonal problem solving and conflict resolution. **Interpersonal problem solving** focuses on teaching students the "thinking" skills necessary to avoid and resolve interpersonal conflicts, resist peer pressure, and cope with their emotions and stress. Students are taught to identify their problems, consider and select from a range of alternative solutions, and evaluate the results of their selection. One example of interpersonal problem solving is the FAST strategy (Vaughn & Bos, 2015):

F = Freeze and think! What is the problem?
A = Alternatives? What are my possible solutions?
S = Solution evaluation. Choose the best solution. Is it safe? Is it fair?
T = Try it! Slowly and carefully. Does it work?

interpersonal problem solving Teaching pupils the cognitive skills needed to avoid and resolve interpersonal conflicts, peer pressure, and ways of coping with stress and their own feelings.

Strategies such as this one can be taught to both large and small groups, as well as to individual students. Students are taught to go through the steps of problem solving, such as those detailed in the FAST strategy, whenever they encounter a problem or conflict.

Conflict resolution programs are similar to problem-solving approaches. However, conflict resolution programs are designed to teach not only problem-solving skills but skills related to negotiation, mediation, and communication (Larrivee, 2009).

conflict resolution A program designed to teach problem-solving skills along with strategies for negotiation and mediation.

Management of Behavioral Crises at School

Some students identified as having emotional or behavioral disorders will, on occasion, become physically aggressive toward others while in other instances they may evidence self-injurious behavior. In recent years, **crisis prevention and management programs** have been implemented to teach educators how to effectively and proactively address pupils' violent, aggressive, and/or self-injurious behaviors. Crisis management programs typically are preventive and proactive in orientation; educators are taught verbal mediation strategies to defuse acting-out behavior before it reaches the point of a physical crisis. If these verbal mediation strategies are unsuccessful, educators are instructed to use physical restraint and employ safety techniques to protect the welfare of both the acting-out individual and those around him or her.

crisis prevention and management program A program in which techniques are taught to teachers on how to effectively and proactively deal with students' violent, aggressive, and/or self-injurious behaviors; a proactive preventative approach.

Students with emotional or behavioral disorders often have difficulty interacting appropriately with peers.

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Technology and Individuals With Emotional or Behavioral Disorders

Although little attention is specifically given to technology and pupils with emotional or behavioral disorders, these students can often benefit from the assistive technologies discussed in Chapter 5 that support accessing and learning in the content areas (for example, speech-to-text, concrete manipulatives) (Courtad & Bouck, 2012). Another increasing area of technology use for individuals with emotional or behavioral disorders is self-management or self-monitoring. Self-monitoring, or regulating one's own behaviors, has a strong evidence base with regard to educating students with emotional or behavioral disorders (Fitzpatrick & Knowlton, 2009; Lee, Palmer, & Wehmeyer, 2009). Although historically self-monitoring involves the use of paper and pencil, more high technology is currently being used to help students monitor their behavior. Pupils with emotional or behavioral disorders have successfully used a pager, a MotivAider (a handheld device that vibrates to provide reminders), a cell phone, and student response systems to self-monitor their behavior (Bedesem & Dieker, 2014; Bouck, 2017; Szwed & Bouck, 2013). (See the accompanying Spotlight on Technology feature for additional information on technology-based self-monitoring.) Aside from students' self-monitoring, technology is also being used by teachers and other educators to monitor student behavior. Increasingly popular is the app ClassDojo (www.classdojo.com), which allows teachers to record student behaviors across the day. This information is stored for teachers as well as given to parents as real-time data. In addition to self-monitoring, technology is often used as a reinforcer in behavior intervention plans for individuals with emotional or behavioral disorders. Students often find computers reinforcing, motivating, and/or engaging (White, Palmer, & Huffman, 2003).

Spotlight on Technology

Assistive technology devices can support students with emotional or behavioral disorders. One element of behavior in which technology increasingly plays a role is self-monitoring. As noted, while traditional self-monitoring is done via paper and pencil, technology devices can also provide reminders and aid in on-task behavior.

Device	Information
Revibe: Classic, Connect, or Connect Plus	• Watch-like device that provides reminders via vibration • An app provides real-time updates • https://revibetech.com
WatchMinder®	• Programmable sports watch, includes 30 alarms and 65 preprogrammed messages • www.watchminder.com
MotivAider®	• Beeper-like device that vibrates to prompt students • https://habitchange.com

Services for Young Children With Emotional or Behavioral Disorders

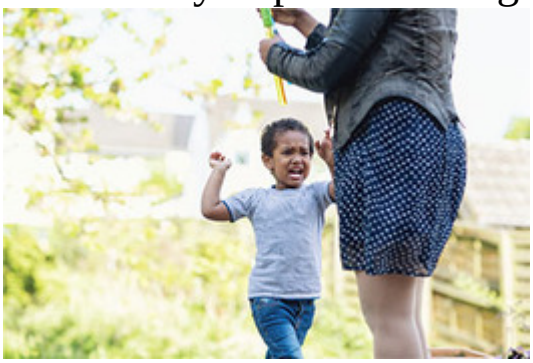
A growing body of research suggests a clear developmental pattern of emotional or behavioral disorders that typically begins at a very early age and appears to persist throughout adolescence and adulthood (Conroy et al., 2015). Infants and toddlers who are born with a “difficult temperament”—those who are frequently irritable, display irregular patterns of sleeping and eating, and are highly emotional—may be at especially high risk for progressing to more acting-out aggressive behaviors, even before they reach their elementary years. Although many believe that very young children who exhibit these antisocial behaviors will outgrow them, research suggests that this is often not the case. In fact, early antisocial behavior appears to be a particularly potent precursor or antecedent to such negative long-term outcomes as dropping out of school, delinquency, drug abuse, and adult incarceration (Walker et al., 2009; Whitted, 2011).

Early intervention is crucial for young children with emotional or behavioral disorders (Kauffman & Landrum, 2018; Wehman, Sutherland, & Achola, 2013). Although early intervention services are clearly beneficial, both in preventing emotional or behavioral disorders from developing and in minimizing their impact once they do develop, these vital services are often lacking (Kauffman & Brigham, 2010; Kauffman & Landrum, 2018). In some instances, it is because of a lack of resources, except for those young children with the most severe disorders. On the other hand, some teachers are hesitant to identify very young children with problematic behaviors (Kauffman, 2010), despite the fact that educators are very capable at identifying youngsters who are at risk for antisocial behavior (Kauffman & Landrum, 2018).

A few early intervention programs are available to help young children at risk for emotional or behavioral disorders. One example of a successful program is First Step to Success (Beard & Sugai, 2004; Walker et al., 1997). First Step to Success is a comprehensive and collaborative school–home

early intervention program initially designed for kindergartners who exhibit emerging antisocial behaviors. This program, involving the combined efforts of teachers, parents, and peers, has been shown to be effective in helping youngsters in kindergarten through third grade who exhibit early-onset antisocial behavior achieve success in school (Frey et al., 2015; Walker et al., 2014; Walker et al., 2012).

Emotional or behavioral disorders that develop at an early age are likely to persist through adolescence and adulthood.



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Transition Into Adulthood

The presence of emotional or behavioral disorders in children is an accurate predictor of school failure, delinquency, adult psychiatric problems, substance abuse, and other problems. Youth who exhibit externalizing as well as internalizing disorders are at heightened risk for impaired functioning and negative, long-term consequences (Kauffman & Landrum, 2018).

A particularly alarming statistic is that over one third of students (35%) with emotional or behavioral disorders leave school before graduation—the highest dropout rate among all categories of students with disabilities (U.S. Department of Education, 2018b). An equally disturbing finding is that the overwhelming majority of students with emotional or behavioral disorders are not identified and served until their teenage years, with 16 being the peak age for placement (U.S. Department of Education, 2018a). Clearly, educators need to work more aggressively to identify and serve this population at earlier ages and to implement effective dropout prevention and transition programs.

Transitioning from school to adulthood is particularly difficult for individuals with emotional or behavioral disorders (Wehman et al., 2013). Educators need to understand that these students have a disability that will require intervention throughout their life span. This means that transition planning needs to be comprehensive and broad based. Transition services need to go well beyond just preparing these students for employment. Rather, there is a need to view transition in terms of postsecondary educational opportunities, independent living choices, and community participation in addition to vocational possibilities. Middle school and secondary school educators need to provide instruction in such diverse areas as personal management, personal health, leisure skills, citizenship, and social skills (Sabornie & deBettencourt, 2009). Effective transition planning includes vocational training, parental and student involvement, interagency collaboration, paid work experience, follow-up employment

services, community-based instruction, and community-referenced curriculum.

One promising approach is a **wraparound plan**, which should begin in the elementary years and continue throughout the secondary years and adulthood. *Wraparound* refers to an approach that "wraps" services and supports around the student and his or her family. This network of comprehensive and coordinated interagency services is provided in school, home, and community environments (McGinty et al., 2013; Smith et al., 2016; Vaughn et al., 2018). Such a plan allows for the integrated involvement of multiple agencies to facilitate the successful transition from school to adulthood for adolescents with emotional or behavioral disorders. Such wraparound plans may be essential for adolescents because many do not have access to the many critical services offered in their communities.

wraparound plan A coordinated interagency effort at providing supports and services to a student and his or her family in the natural environment—school, home, or community.

Adults With Emotional or Behavioral Disorders

Once a student with emotional or behavioral disorders leaves secondary education and enters postsecondary education or employment, the protections offered by IDEA no longer apply. Two other legislative acts protect these young adults in the areas of education and employment: Section 504 of the Rehabilitation Act of 1973 (PL 93–112) and the Americans with Disabilities Act (ADA) (PL 101–336). Both Section 504 and ADA guarantee individuals with disabilities "equal access" to postsecondary programs if they are "otherwise qualified." This does not mean that individuals with disabilities are automatically guaranteed access to postsecondary institutions; they must meet the admission criteria for the institution to which they apply. It does mean that postsecondary institutions cannot deny admission simply because the individual has a disability. If an individual with a disability is admitted to a federally funded postsecondary institution, he or she is entitled to "reasonable accommodations." These accommodations might include, for example, extended time on assignments, texts on digital platforms, and peer tutoring.

Postsecondary program options for students with emotional or behavioral disorders include vocational and technical programs, trade schools, adult education programs, two-year community colleges, and four-year colleges and universities. Given the alarming dropout rates among pupils with emotional or behavioral disorders, however, many of these students never enter, much less complete, postsecondary programs that will prepare them for meaningful careers (Wehman et al., 2013). Consequently, many of these individuals are underemployed or unemployed.

For those students who do pursue postsecondary education opportunities, preparation must begin early in their secondary years. Areas of instruction that will need to be addressed include time management skills, organizational skills, study skills, and self-advocacy. Another important area is helping students learn about the types of support services they may need during their years in higher education, such as writing centers,

counseling services, tutoring, and instructional supports. Learning how to advocate for these services and apply for disability services in higher education settings is a critical skill that should be incorporated into an individualized transition plan early during a student's secondary years.

Postsecondary institutions cannot deny admissions simply because a student has a disability.

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Employment training is available to many young adults with emotional or behavioral disorders through vocational rehabilitation services. Not all individuals, however, will receive these services. Vocational rehabilitation is an eligibility program, not an entitlement program, and eligibility criteria differ from those in IDEA. For young adults who do qualify for vocational rehabilitation services, an individualized rehabilitation plan is developed and implemented. This plan addresses areas such as basic skill development, communication skills, and specific on-the-job skills.

Family-Centered Interventions

Some professionals, including educators, blame parents for the behavioral problems exhibited by their children. This blaming, however, often creates a significant barrier to working effectively and collaboratively with families. Rather than blaming parents, effective programs for children and youth with emotional or behavioral disorders seek to meaningfully involve parents and other caregivers in providing interventions and services that meet the needs of the student and his or her family. Many of these programs incorporate **family-centered early intervention**. This approach recognizes the central role that the family plays in the lives of individuals and focuses on the strengths and assets of the family unit (Gargiulo & Kilgo, 2020; Turnbull, Turnbull, Erin, Soodak, & Shrogren, 2015).

> **family-centered early intervention** A philosophy of working with families that stresses family strengths and capabilities, the enhancement of skills, and the development of mutual partnerships between service providers and families.

Raising a child with an emotional or behavioral disorder can be extraordinarily difficult and highly stressful. A child with a disability may affect family finances, put a strain on marital and sibling relationships, create a need for respite care, and disrupt family routines and schedules (Turnbull et al., 2015). Another common stressor is the isolation that caretakers often experience because of the negative reactions of others to the child's behaviors (Taylor-Richardson, Heflinger, & Brown, 2006). These negative reactions from extended family members, neighbors, friends, and others can be emotionally and physically draining. As an educator, you need to interact positively with parents as much as possible and ensure that your communications with parents are positive as well as constructive.

Issues of Diversity

A continuing, yet unresolved, issue confronting educators is the overrepresentation of African American students, particularly males, in special education programs for pupils with emotional or behavioral disorders (Cartledge & Robinson-Ervin, 2016; Smith et al., 2016; U.S. Department of Education, 2018b). Explanations for this situation are multifaceted ranging from culturally insensitive assessment practices, to an incongruity between educators' values (primarily white women) and those of their students, to the consequences of residing in poverty (Gollnick & Chinn, 2017).

In contrast to the overrepresentation of African Americans, relatively little has been written about the underrepresentation of females. Generally speaking, girls are less likely to be identified and receive services for students with emotional or behavioral disorders. One suggested explanation is that girls are much more likely to exhibit internalizing disorders such as depression or anxiety (Higa-McMillan, Francis, & Chorpita, 2014), whereas boys are more likely to display externalizing behaviors such as aggression. Because internalizing disorders are not typically disruptive to the learning process, educators may not consider these behaviors to be as serious; hence, they are less likely to initiate a referral for special education (Wicks-Nelson & Israel, 2015). This suggests that when girls are identified as having emotional or behavioral disorders, they may evidence more severe problems and require more intensive intervention.

Trends, Issues, and Controversies

Throughout this chapter, considerable attention has been paid to the very poor outcomes experienced by children and youth with emotional or behavioral disorders. Although the outcomes for this population are generally dismal, the twenty-first century has brought proven strategies and practices that can greatly improve these outcomes. Professionals now have available an arsenal of intervention strategies at their disposal. One contemporary example is the use of **response to intervention (RTI)**, which we introduced in Chapter 7. You may recall that RTI is a data-driven approach whereby a pupil receives increasingly intensive levels of evidence-based intervention matched to his or her individual needs. Typically associated with students with learning disabilities, RTI has intuitive appeal for individuals who exhibit emotional or behavioral disorders (Fairbanks, Sugai, Guardino, & Lathrop, 2007). RTI is increasingly being used with students who present challenging behaviors in the classroom (Kauffman, Nelson, Simpson, & Ward, 2017; Smith et al., 2016; Vaughn & Bos, 2015). "Key to RTI are the goals of early identification of emotional or behavioral disorders, appropriate intervention, and the monitoring of student progress" (Vaughn et al., 2018, p. 252). (One example of an evidence-based practice or intervention for pupils with emotional or behavioral disorders is positive behavioral support. See page 274 for a description of this strategy.) Some investigators (Kauffman, Bruce, & Lloyd, 2012) believe, however, that while elements of RTI are supported by a solid research base, the benefit of RTI for students with emotional or behavioral disorders is awaiting further validation.

> **response to intervention (RTI)** A strategy typically used for determining whether a pupil has a learning disability. The student is exposed to increasing levels of validated instructional intervention; responsiveness to the instruction is assessed; a lack of adequate progress typically leads to a referral for possible special education services.

Another issue attracting considerable attention is the use of physical restraint and seclusion with students with emotional and behavioral disorders. Reports of abuse and misuse of these two intervention tactics

have led to calls for legislation and policy statements in an effort to regulate, and in some instances outright forbid, their use. Although there is a lack of consensus among professionals as to whether or not these control techniques are necessary or appropriate, there is general agreement that oversight and supervision is needed (Alberto & Troutman, 2017).

Physical restraint (also known as manual restraint) typically refers to restricting an individual's freedom of movement, physical activity, or access to his or her body (Council for Children with Behavioral Disorders, 2009a). Unfortunately, there is a paucity of research on the effectiveness, frequency, and application of physical restraint. Furthermore, almost no research is available on the use of this strategy in schools (Council for Children with Behavioral Disorders, 2009a).

> **physical restraint** The restriction of a student's freedom of movement, physical activity, or access to his or her body.

Seclusion is considered to be "the involuntary confinement of a student alone in a room or area from which the student is physically prevented from leaving" (Council for Children with Behavioral Disorders, 2009b, p. 1). This includes situations where a door is locked, held shut by an adult, or barricaded by objects. Most schools view seclusion as a behavior change strategy and use it as a consequence when a pupil is out of control. Very little research exists on the use of seclusion in educational settings. Many professionals suspect that its use is on the increase as more students with significant behavioral and emotional needs are being served in inclusive learning environments (Council for Children with Behavioral Disorders, 2009b).

> **seclusion** The involuntary confinement of a student to a room or area from which he or she is physically prevented from leaving.

Due to the ongoing controversy surrounding the use of physical restraint and seclusion in our schools, the U.S. Department of Education developed a set of guidelines for educators, parents, and other stakeholders. The

principles contained within this resource document are portrayed in Table 9.5.

Like many professionals, we question whether or not restraint and seclusion are appropriate intervention strategies and represent best practice for children and youth with emotional or behavioral disorders. Certainly these are controversial procedures. We recommend, therefore, that teachers carefully read their school district's policy and procedures manual on this topic. Physical restraint and seclusion should only be considered when a child's behavior poses imminent danger of serious physical harm to him- or herself or when the safety and well-being of other students or staff is in jeopardy. These procedures should never be a teacher's initial attempt at controlling a pupil's inappropriate behavior.

Table 9.5 Principles for Using Physical Restraint and Seclusion in Schools

Table 9.5 Principles for Using Physical Restraint and Seclusion in Schools

1. Every effort should be made to prevent the need for the use of restraint and for the use of seclusion.
2. Schools should never use mechanical restraints to restrict a child's freedom of movement, and schools should never use a drug or medication to control behavior or restrict freedom of movement (except as authorized by a licensed physician or other qualified health professional).
3. Physical restraint or seclusion should not be used except in situations where the child's behavior poses imminent danger of serious physical harm to self or others and other interventions are ineffective and should be discontinued as soon as imminent danger of serious physical harm to self or others has dissipated.

4. Policies restricting the use of restraint and seclusion should apply to all children, not just children with disabilities.
5. Any behavioral intervention should be consistent with the child's rights to be treated with dignity and to be free from abuse.
6. Restriction or seclusion should never be used as punishment or discipline (e.g., placing in seclusion for out-of-seat behavior), as a means of coercion or retaliation, or as a convenience.
7. Restraint or seclusion should never be used in a manner that restricts a child's breathing or harms a child.
8. The use of restraint or seclusion, particularly when there is repeated use for an individual child, multiple uses within the same classroom, or multiple uses by the same individual, should trigger a review and, if appropriate, revision of strategies currently in place to address dangerous behavior; if positive behavioral strategies are not in place, staff should consider developing them.
9. Behavioral strategies to address dangerous behavior that results in the use of restraint or seclusion should address the underlying cause or purpose of the dangerous behavior.
10. Teachers and other personnel should be trained regularly on the appropriate use of effective alternatives to physical restraint and seclusion, such as positive behavioral interventions and supports, and, only for cases involving imminent danger of serious physical harm, on the safe use of physical restraint and seclusion.
11. Every instance in which restraint or seclusion is used should be carefully and continuously and visually monitored to ensure the appropriateness of its use and safety of the child, other children, teachers, and other personnel.

12. Parents should be informed of the policies on restraint and seclusion at their child's school or other educational setting, as well as applicable federal, state, or local laws.

13. Parents should be notified as soon as possible following each instance in which restraint or seclusion is used with their child.

14. Policies regarding the use of restraint and seclusion should be reviewed regularly and updated as appropriate.

15. Policies regarding the use of restraint and seclusion should provide that each incident involving the use of restraint or seclusion be documented in writing and provide for the collection of specific data that would enable teachers, staff, and other personnel to understand and implement the preceding principles.

Source: U.S. Department of Education, *Restraint and Seclusion: Resource Document* (Washington, DC: Author, 2012), pp. 12–13.

Chapter in Review

Defining Emotional or Behavioral Disorders (Learning Objective 9.1)

- There is no universally accepted definition of emotional or behavioral disorders.
- Terms used to describe individuals with emotional or behavioral disorders are very diversified and compounded by the variability in our understanding of what constitutes “normal” behavior.
- The current IDEA definition of emotional disturbance is controversial.

Classification of Individuals With Emotional or Behavioral Disorders (Learning Objective 9.2)

- Clinically and statistically derived classification systems are frequently used to classify the many different types of emotional or behavioral disorders.
- Externalizing disorders are sometimes referred to as “undercontrolled” behaviors, and internalizing disorders are sometimes referred to as “overcontrolled” behaviors.

History of the Field (Learning Objective 9.3)

- Individuals with emotional or behavioral disorders were often ostracized by society and excluded from receiving an education. Over the years, however, significant improvement in services occurred largely due to the efforts of influential and concerned individuals.

Etiology of Emotional or Behavioral Disorders (Learning Objective 9.4)

- Most professionals believe that the development of emotional or behavioral disorders is related to both biological and psychosocial risk factors.
- Students with emotional or behavioral disorders represent an underidentified population. Currently, less than 1 percent of all pupils in public schools are recognized as having emotional or behavioral disorders.

Prevention of Emotional or Behavioral Disorders (Learning Objective 9.5)

- Resiliency can help minimize the negative outcomes associated with emotional or behavioral disorders.
- Positive behavioral support is a schoolwide proactive approach designed to prevent problem behaviors from occurring and, if they do occur, to intervene early to prevent escalation.

Characteristics of Children and Youth With Emotional or Behavioral Disorders (Learning Objective 9.6)

- Research indicates that pupils with emotional or behavioral disorders typically score in the low to average range on measures of intelligence.
- Perhaps the most salient characteristic of students with emotional or behavioral disorders is their difficulty in building and maintaining satisfactory relationships with peers and adults.

Assessing Students With Emotional or Behavioral Disorders (Learning Objective 9.7)

- Person-centered planning, strength-based assessment, and functional behavioral assessment are representative of the contemporary trends in assessment of pupils with emotional or behavioral disorders.
- A behavior intervention plan is mandated by PL 108–446 for those individuals who exhibit problematic behaviors in school.

Educational Considerations (Learning Objective 9.8)

- Students with emotional or behavioral disorders represent one of the more educationally segregated groups of students with disabilities.
- Effective management of the physical environment includes proactively addressing such areas as time management, transition management, and proximity and movement management, along with classroom management.
- Mnemonics, self-monitoring strategies, and content enhancements are examples of effective instructional strategies designed to assist students with emotional or behavioral disorders in accessing the general education curriculum.
- At the classroom level, educators can tap an array of interventions including social skills training, interpersonal problem solving, and conflict resolution, in addition to crisis prevention and management programs.

Technology and Students With Emotional or Behavioral Disorders (Learning Objective 9.9)

- Self-monitoring is one example of assistive technology that benefits pupils with emotional or behavioral disorders.

Emotional or Behavioral Disorders Across the Life Span (Learning Objective 9.10)

- Early intervention is crucial for youngsters who exhibit emotional or behavioral disorders.
- Students with emotional or behavioral disorders have the highest dropout rate among all categories of pupils with disabilities.
- To improve the outcomes for both adolescents and adults with emotional or behavioral disorders, research suggests that wraparound planning is necessary.

Contemporary Issues and Controversies (Learning Objective 9.11)

- Students who are African American are overrepresented in programs for pupils with emotional or behavioral disorders while females are underrepresented.
- RTI is increasingly being used with individuals who present challenging behaviors.
- Physical restraint and seclusion of students with emotional or behavioral disorders are controversial intervention tactics.

Study Questions

1. Why is the federal definition of emotional disturbance controversial? How does this definition differ from the one proposed by the Council for Children with Behavioral Disorders? Discuss the pros and cons of each definition.
2. Compare and contrast clinically and statistically derived classification systems. Give examples of each.
3. Define externalizing and internalizing disorders. Give an example of behaviors reflecting each of these two dimensions.
4. List four causes of, and risk factors associated with, emotional or behavioral disorders.
5. How does a positive behavioral support model differ from traditional disciplinary methods?
6. What are some of the significant learning, social, and language/communication characteristics of children and youth with emotional or behavioral disorders?
7. Give examples of three strategies typically used to assess students with emotional or behavioral disorders.
8. How can a teacher manipulate the physical environment to assist students with and without emotional or behavioral disorders?
9. Give examples of instructional interventions that are effective with pupils with emotional or behavioral disorders.
10. Describe how you would use the following intervention strategies with students with emotional or behavioral disorders: social skills training, interpersonal problem solving and conflict resolution, and crisis prevention and management programs.
11. Provide an argument for providing early intervention services for students who have, or who are at risk for developing, emotional or behavioral disorders.
12. What does research say about the long-term outcomes for students with emotional or behavioral disorders?
13. What issues need to be considered when planning for the transition of adolescents with emotional or behavioral disorders?
14. Why is disproportionate representation an issue for students with emotional or behavioral disorders?

15. Define the term *wraparound planning*.

Key Terms

mentally ill, 263
emotional or behavioral disorder, 263
emotional disturbance, 263
socially maladjusted, 264
conduct disorder, 264
clinically derived classification system, 267
statistically derived classification system, 267
externalizing disorder, 267
internalizing disorder, 267
Tourette syndrome, 271
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positive behavioral support, 274
primary prevention, 275
secondary prevention, 275
tertiary prevention, 275
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functional behavioral assessment, 277
behavior intervention plan, 278
time management, 279
transition management, 280
proximity and movement management, 280
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mnemonic strategy, 283
self-monitoring strategy, 284
content enhancement, 284
social skills training, 288
interpersonal problem solving, 288
conflict resolution, 288
crisis prevention and management program, 289
wraparound plan, 291
family-centered early intervention, 292

response to intervention (RTI), 293
physical restraint, 293
seclusion, 293

Learning Activities

1. Break into small groups to debate whether or not Mike is “socially maladjusted” as defined by the current federal definition of emotional disturbance.
2. Visit a local mental health center and interview a counselor, psychologist, or social worker. Determine the extent to which this mental health center has created linkages with the public schools.
3. Work with a group to develop a presentation on promoting resiliency among children and youth.
4. Visit a local school. Investigate the extent to which a positive behavioral support model is being implemented. Identify ways in which such a model might be integrated into the school at the primary, secondary, and tertiary levels of prevention.
5. Interview a special educator who teaches students with emotional or behavioral disorders. Ask him or her to describe the types of assessment strategies typically used with this population in the school setting.
6. Prepare a class presentation on one of the following:

    a. Conduct disorders
    b. Schizophrenia
    c. Obsessive-compulsive disorder
    d. Depression and/or suicide

Organizations Concerned With Emotional or Behavioral Disorders

American Psychiatric Association

www.psychiatry.org

American Psychological Association

www.apa.org

Council for Children with Behavioral Disorders (CCBD), Council for Exceptional Children

www.ccbd.net

Mental Health America

www.mentalhealthamerica.net

National Federation of Families for Children's Mental Health

www.ffcmh.org

Reflecting on Standards

The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Curricular Content Knowledge (CEC Initial Preparation Standard 3.1)

Reflect on what you have learned about behavior management in this book thus far. Based on what you have learned, how would you establish your classroom rules? What kinds of rules do you think are important to have in your class? How do you plan to assess which classroom rules are best suited for your particular students?

Focus on Learning Environments (CEC Initial Preparation Standard 2.2)

Reflect on a teacher you have had who used his or her instructional time in class effectively. Why was he or she effective? How did he or she schedule the instructional time in class to make things flow well? What steps do you plan to take in your instructional planning to make sure to use instructional time wisely?

Student Study Site

Sharpen your skills with SAGE edge at **edge.sagepub.com/gargiulo7e**. SAGE edge for students provides a personalized approach to help you accomplish your coursework goals in an easy-to-use learning environment.

10 Individuals With Autism Spectrum Disorders

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Learning Objectives

After reading Chapter 10, you should be able to:

10.1 **Describe** the evolution of the definition of autism spectrum disorders.
10.2 **Identify** the key features of the DSM-5 definition of autism spectrum disorder.
10.3 **Discuss** examples of etiological possibilities of autism spectrum disorders.
10.4 **Summarize** the behavioral, social, and communication characteristics typically associated with individuals with autism spectrum disorders.
10.5 **Explain** how autism spectrum disorders are diagnosed.
10.6 **Describe** instructional strategies often used with students with autism spectrum disorders.
10.7 **Explain** how low-tech and high-tech devices are used to facilitate communication and independence in pupils with autism spectrum disorders.
10.8 **Summarize** services for young children and adults with autism spectrum disorders.
10.9 **Identify** controversial issues confronting families of children with autism spectrum disorders.

A Parent's Personal Perspective on Autism Spectrum Disorders

When my son, Collin, was 2 years old, he still wasn't talking. People around me said boys talk later and not to worry. But I worried. His pediatrician recommended a speech and language evaluation. During the evaluation, the therapist asked my son what he might find in his mother's purse. I was quick to chime in that I didn't carry a purse and provided other excuses for his delays. I was shocked when the evaluator told me she felt my son had more than just a speech and language delay.

My son was then enrolled in an inclusive preschool program two mornings a week where he received speech and occupational therapy services. The school psychologist reported that Collin did not make eye contact, interact, or communicate with the other children. Instead, he would isolate himself and spin in circles. I asked the psychologist, in tears, if my son had autism spectrum disorder. Her reply was, "Let's wait and see. This could just be a speech delay." All I focused on was "This could just be a speech delay," and I retreated into denial. Over the next year, our family received two visits from social services investigating my son's bruises and his reactions when someone would touch him. On one extreme, he would hit his head hard on an object and not show any expression of pain. On the other extreme, if you touched his shoulder lightly with your hand, he would retreat and run away.

When Collin was 3, he started in an early childhood special education program four mornings a week with speech and occupational therapy services. When he turned 4, the special education team stated that my son was not ready to be in a general education

classroom. I knew that a speech delay alone would not contribute to this type of statement, so I made an appointment with a private psychologist.

The psychologist confirmed my fears, and my son was diagnosed with autism spectrum disorder. I was angry that the school had allowed me to linger in denial and not identified Collin earlier. Intervention is key, and I felt robbed of opportunities for more intensive early services for my son's needs outside of what the school had offered. I immediately got my son involved in behavior-based in-home programming.

After the diagnosis, my husband and I reflected on our knowledge of individuals with disabilities in order to provide us with some insight into what we could expect for our son. We had attended schools across the country in urban, suburban, and rural settings and realized individuals with disabilities were not represented in any of the schools. This lack of knowledge provided us with no idea of what to expect or what the future held for Collin. The internet was not available, like it is today, so we searched for information at the library. We found one book written by Bruno Bettelheim that placed the blame for autism spectrum disorders on the mother. I needed more information, so I joined the Autism Society. I learned many children with autism spectrum disorders are placed in segregated classrooms with minimal opportunities for inclusion. So, when the school district suggested our son be bused to a special education program in the next community, my husband and I insisted that he be included in his neighborhood school.

At first, the general education teachers placed all of the responsibility for our son's education on the special education staff and paraprofessionals. Many of the general educators had not received any training on autism spectrum disorders or how to include students with disabilities in their classrooms. So, at the beginning of elementary school, my husband and I did an in-service for the entire staff.

In kindergarten, because my son was fearless and had no concept of safety, he would engage in risky behaviors that resulted in two broken arms. In first grade, during April's autism awareness month, the local television station did a segment featuring our son in a physical education class. His classmates told their parents it was because Collin was such a good dancer. His peers saw his strengths, and his teachers started to understand him. In second grade, the librarian noticed when she let students check out more than the typical two books that my son was uncomfortable, but then she remembered that change was difficult for him. By third grade, teachers were volunteering to have Collin placed in their classroom and sharing that having Collin in class was teaching them as much as they were teaching him. At his elementary school graduation, the principal shared that Collin had changed the entire school by showing the teachers that they could successfully include students with special needs in their classrooms.

In middle school, Collin continued to be included in inclusive classes, but the peer relationships dissipated. When one of his teachers noticed Collin sitting alone at lunch, she joined him and then started a Best Buddies chapter to ensure social opportunities. The principal started a lunch mix-up, having students sit at a different table every day based on their birthday month or the second letter of their first name.

The summer before his freshman year of high school, Collin was asked if he would like to join the cross-country team. The coach thought Collin could help manage the team, but

Collin showed up to run. Collin gained the respect and acceptance of the team as he did his best to stay with them during runs and never quit when he was tired. Being on the team gave Collin a social function to attend with dinners where the team would state their personal goals. Collin's goals were keeping his shoelaces from coming undone and not accidentally straying off the course. During Collin's senior year, he received the "most improved" award on a team that won the state championship three out of four years.

We also insisted that Collin be included in inclusive high school courses. The school was concerned about what he would learn since he read below grade level and had comprehension challenges. One of the books his literature class read was *Romeo and Juliet*. At home, we had Collin read a page, and then we would read a page together. We also listened to audio versions of the book and later watched a movie version. My son's response to Romeo and Juliet being dead was "That was not a happy ending." Our son didn't comprehend some of the underlying intricacies of the book, but he did experience the power of the ending. Later that same year, Collin requested to see *A Midsummer Night's Dream*. He stated that he wanted to see it because it was written by the great author Shakespeare. Collin's experiences demonstrate the importance of providing access to the general education curriculum and extracurricular activities.

Collin currently attends Edgewood College in Madison, Wisconsin, in a "Think College" program. He is learning to speak Spanish by auditing college courses. He became interested in learning Spanish during his high school transition vocational experiences in the kitchens of local restaurants where almost everyone spoke Spanish. He desires to start a dog grooming business, as he loves animals, and is working on a business certificate with support from Vocational Rehabilitation. His future looks bright because of educators who had high expectations, presumed competence, modeled acceptance, and provided a high-quality education. We hope you will be that kind of educator!

—L. Lynn Stansberry Brusnahan

Although most people have heard the term **autism spectrum disorders**, their perceptions may be colored by television shows and movies. For example, did you see the classic movie *Rain Man* or perhaps *Mercury Rising*? In these two movies, individuals with autism spectrum disorders (commonly referred to as ASD) are portrayed as possessing very special recall and mathematical skills. You may believe that all individuals with ASD possess these unique abilities. This is a common misperception; only rarely do individuals with autism spectrum disorders actually demonstrate these special skills.

autism spectrum disorders A developmental disorder characterized by abnormal or impaired development in social interaction and communication and a markedly restricted repertoire of activity and interests.

The variability of behaviors associated with ASD has resulted in professionals referring to autism as a spectrum disorder with features ranging from mild to severe.

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In contrast to the movies, some television shows portray individuals with ASD as being locked into their own world, unable to communicate or to give or receive affection. Often, it is implied that if someone could just break through their isolation, there would be a genius inside. In addition, individuals with ASD are often shown as being aggressive and/or self-injurious. These are all common myths about ASD. Most individuals with autism spectrum disorders learn to speak or communicate with sign language, picture symbols, and, often, assistive technology. Although their deficits may impair the way they give and receive affection, even the most severely impaired individuals with autism spectrum disorders demonstrate and accept affection from the significant people in their lives. The belief that a genius exists inside each individual with ASD is fueled by the presence of unevenly developed skills. For example, a child may be able to read fluently but may not understand a word he or she has read.

What does ASD really look like? Although all individuals with autism spectrum disorders show characteristic deficits in communication and social skills, as well as restrictive behaviors and interests, each person is unique. A range of behavioral characteristics is often associated with autism spectrum disorders including hyperactivity, short attention span, impulsivity,

aggressiveness, and sometimes self-injurious behaviors. The degree to which these features are demonstrated, in combination with intellectual ability, helps to define the person’s strengths and challenges. It is the variability of these behaviors that has resulted in professionals referring to autism as a spectrum disorder with features ranging from mild to severe.

Despite their deficits, individuals with autism spectrum disorders can lead meaningful and productive lives and be an integral part of their family, school, and community. Students with ASD benefit from educational interventions; they also learn from social opportunities and community inclusion. This chapter will explore these topics and others in greater detail, beginning with the evolution of the disorder.

Defining Autism Spectrum Disorders: An Evolving Process

Autism spectrum disorders are among the least understood and most mysterious disabilities in special education. An estimated 3.5 million individuals in the United States today have autism spectrum disorders. ASD is considered the fastest-growing developmental disability (Autism Society of America, 2019b).

The Early Years

First described in the early 1800s (Volkmar & Wiesner, 2009), it was not until 1943 that Leo Kanner, a psychiatrist at Johns Hopkins Hospital in Baltimore, identified the symptoms that characterize autism. Kanner (1943/1985) described eleven children with an "inability to relate themselves in the ordinary way to people and situations" (p. 41). Kanner used the term *autistic*, which means "to escape from reality," to describe this condition. Prior to Kanner's work, individuals with autism spectrum disorders were given many labels, including *childhood schizophrenia*, *feebleminded*, *idiot*, *mentally retarded*, and *imbecile*. Kanner believed that these children came "into the world with innate inability to form the usual, biologically affective contact with people, just as other children come into the world with innate physical or intellectual handicaps" (p. 50). In addition, Kanner described these children as having an excellent rote memory, delays in the acquisition of speech and language (including pronoun reversals, echolalia, and extreme literalness), and an anxiously obsessive desire for the maintenance of sameness.

Children with autism spectrum disorders are guaranteed a free appropriate public education.

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The word *autistic* was borrowed from a term used to describe schizophrenia that means a withdrawal from relationships. Kanner (1943/1985) used the term to describe an "inability to relate to themselves," and noted that the disorder starts as an "extreme autistic aloneness that, whenever possible, disregards, ignores, [or] shuts out anything that comes to the child from outside" (p. 41). Kanner differentiated autism from schizophrenia in three areas: an extreme aloneness from the very beginning of life, an attachment to objects, and a powerful desire for aloneness and sameness.

Despite Kanner's distinction between autism and schizophrenia, for many years children with autism were described in the literature as having childhood schizophrenia, early infantile autism, or childhood onset pervasive developmental disorder. It was hypothesized that many of these children would develop schizophrenia as adults, which clinicians now know is not true. The use of these terms added to the diagnostic confusion and lack of understanding regarding ASD.

Individuals With Disabilities Education Act

Fortunately, a lot has changed in the field since 1943. Autism is now one of the specific disability categories defined in the Individuals with Disabilities Education Act (IDEA). With the reauthorization of IDEA in 1990 (PL 101–476), autism was added as a discrete category. The 2004 amendments to IDEA define autism as follows:

> (i) Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, usually evident before age three, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences.
> (ii) Autism does not apply if a child's educational performance is adversely affected primarily because the child has an emotional disturbance . . .
> (iii) A child who manifests the characteristics of autism after age three could be diagnosed as having autism if the criteria in paragraph (c) (1) (i) of this section are satisfied. (34 C.F.R. §300.8 [c] [1])

American Psychiatric Association Definition

The American Psychiatric Association (APA) periodically updates the diagnostic and statistical manual (DSM) that defines mental disorders and general medical conditions. Autism first appeared in the third edition of the DSM, published in 1977; before that time, the APA did not recognize autism as a separate disorder. The Autism Society of America was instrumental in the inclusion of autism in the DSM-III and influenced the definition that was ultimately used (Freeman, 1999). Since 1980, autism has been characterized in the DSM as a pervasive developmental disorder to highlight the fact that autism is a developmental disorder of childhood, not a psychotic disorder like schizophrenia. The APA radically revised its thinking about autism spectrum disorders with the publication of the fifth edition of the DSM in May 2013. The new terminology of choice is *autism spectrum disorder,* which is now characterized as a neurodevelopmental disorder (along with, for example, intellectual disability, attention deficit hyperactivity disorder, learning disabilities, and other disorders) rather than a pervasive developmental disorder. The new edition consolidates autistic disorder (autism), Asperger disorder (syndrome), and pervasive developmental disorder under the heading of autism spectrum disorder. The rationale for this change is that "these disorders represent a single continuum of mild to severe impairments in the two domains of social communication and restrictive/repetitive interests rather than being distinct disorders" (American Psychiatric Association, 2013, p. xliii).

The APA characterizes autism spectrum disorder as

> persistent deficits in social communication and social interaction across multiple contexts, including deficits in social reciprocity, nonverbal communicative behaviors used for social interaction, and skills for developing, maintaining, and understanding relationships. In addition to the social communication deficits, the diagnosis of autism spectrum disorder requires the presence of

> restricted, repetitive patterns of behavior, interests, or activities. (American Psychiatric Association, 2013, p. 31)

See Table 10.1 for an expansion of this definition.

A child diagnosed with autism spectrum disorder can be assigned one of three levels of severity, recognizing that severity may fluctuate over time and vary by context. Classification is based on the amount of support required by the individual to counteract impairments in everyday functioning. The DSM-5 offers the following three levels: Level 1: requiring support; Level 2: requiring substantial support; and Level 3: requiring very substantial support.

Asperger Syndrome

Although the DSM-5 no longer classifies Asperger disorder as a discrete disability due to considerable overlap with autism spectrum disorder, we believe that individuals with this impairment—more commonly known as **Asperger syndrome**, first described in 1944 by Hans Asperger, an Austrian pediatrician and contemporary of Leo Kanner—merit attention. Asperger's work, written in German, was later popularized by English psychiatrist Lorna Wing (1981), who referenced his earlier investigation of children he identified as "little professors."

Asperger syndrome A pervasive developmental disorder with severe and sustained impairments in social interaction and the development of restricted, repetitive patterns of behavior, interests, and activities; causes clinically significant impairments in other important areas of functioning.

Individuals with Asperger syndrome, which is foremost a social disorder (Myles & Simpson, 2002), have no significant delay in language development, and the majority of students with Asperger syndrome have average to above-average intellectual abilities (Hall, 2018; Ryan, Hughes, Katsiyannis, McDaniel, & Sprinkle, 2011). Children with Asperger syndrome are typically not diagnosed until they attend school and the social demands of the classroom cause their limitations to become apparent

(Hyman & Levy, 2013). Unique characteristics and qualities typical of individuals with Asperger syndrome include the following:

- Auditory and tactile hypersensitivity
- Concrete and literal thinking
- Coordination and balance problems
- Decreased sensitivity to pain
- Difficulty comprehending abstract materials
- Difficulty understanding and appreciating the feelings and thoughts of others
- Difficulty understanding nonverbal social cues
- Extensive vocabulary within a narrow area of interest (“little professor”)
- Formal pattern of speaking
- Inflexibility
- Poor motor skills
- Poor self-concept and low self-esteem
- Restricted range of interests
- Rigid adherence to rules and routines
- Significant academic problems
- Social awkwardness
- Superior rote memory skills (Boutot, 2017; Heflin & Alaimo, 2007; Myles & Simpson, 2002)

Table 10.1 Diagnostic Criteria for Autism Spectrum Disorder

Table 10.1 Diagnostic Criteria for Autism Spectrum Disorder

A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history: 1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.

2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.

3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.

B. Restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history:

1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypies, lining up toys or flipping objects, echolalia, idiosyncratic phrases).

2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day).

3. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests).

4. Hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with light or movements).

C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies later in life).
D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.
E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

Source: *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. (Arlington, VA: American Psychiatric Association, 2013), pp. 51–53.

It is important to remember, however, that individuals with Asperger syndrome represent a very heterogeneous population, and very few generalizations can be made that adequately describe any one individual (Heflin & Alaimo, 2007).

Given the benefits of early intervention, it is essential that educators are aware of the possible indicators of Asperger syndrome. The presence of a cluster of these characteristics, over a period of time, should result in a formal referral for special education services (Dahle & Gargiulo, 2003). If found eligible for services, students with Asperger syndrome may qualify for eligibility through a multitude of classifications because Asperger syndrome is not a distinct educational category identified by IDEA 2004.

A Brief History of the Field[1]

1 We have chosen to use the term *autism* in this section of the chapter because it was the terminology of choice in earlier decades.

The field of autism has continued to grow since Kanner (1943/1985) identified the first eleven children with autism. We now turn our attention to some of the early researchers in the field and early theories about the etiology of autism and conclude with a brief examination of more contemporary thinking about causes of autism.

Psychogenic Theories

Following Kanner's initial research on autism, many researchers focused on inappropriate or bad parenting as a cause of autism. Rank (1949), for example, blamed "bad mothering" and emphasized deviant maternal characteristics. These theories, known as **psychogenic theories**, were embraced by Freudian therapists. They hypothesized that if certain basic psychological bonds were not established between parent and child, the child would not be able to establish relationships with others and would fail to progress. Individual psychotherapy was recommended for the child and the parents. In *The Empty Fortress: Infantile Autism and the Birth of Self*, Bruno Bettelheim (1967) speculated that during their child's infancy some parents, particularly mothers, withheld affection or exhibited extremely negative feelings toward their son or daughter; consequently, the youngster retreated into an autistic "empty fortress." Bettelheim's book further contributed to the idea of blaming parents as the cause of the child's autistic condition.

> **psychogenic theories** Theories embracing the Freudian perspective that if basic psychological bonds are not established between the parent and the child, the child will not be able to establish relationships with others and will fail to progress. Individual psychotherapy is recommended as the treatment of choice.

In 1985, Bernard Rimland disputed these psychogenic theories of autism. An advocate for families with children with autism and the father of an individual with autism, Rimland reacted to the idea that parents, particularly mothers, were judged to be guilty of causing their child's autism based on a hypothesis that had not been proved. Rimland set forth nine points as evidence for the biological origins of autism that are still considered valid today. Nevertheless, the controversy over the causes of autism did not stop with Rimland's work. It was the continued research on the biological causes of autism and the advocacy of the Autism Society of America (formerly the National Society for Autistic Children founded by Bernard Rimland) that eventually quieted the psychogenic theories of causation.

Organic Theories

In the 1940s and 1950s, Lauretta Bender and other researchers suggested that autism may be organically based and that the mother’s behavior was a reaction to the child’s condition (Rutter, 1978). The high incidence of seizures in individuals with autism, documented in the 1960s, continues to support an organic framework for autism (Potvin & Ratto, 2019; Volkmar & Nelson, 1990). Finally, the biological basis of autism is no longer in question because of its association with intellectual disability (Volkmar & Pauls, 2003).

Behavioral Theories

Charles Ferster was one of the first behavioral psychologists to propose that autism was environmentally determined (LaVigna, 1985). Behavioral psychologists such as Ferster believed that the child with autism was not conditioned properly by his or her parents. Ferster, and those who followed, provided the foundation for what is known today as **applied behavior analysis (ABA)**. The work of Ivar Lovaas (1987, 1993) with individuals with autism grew out of Ferster's investigations in behavior modification. A major focus of Lovaas's work initially was in the area of self-injurious behavior. At first, Lovaas used forms of punishment, such as shock, to reduce self-injurious behaviors. Later, Lovaas learned that individuals with autism adapted to these forms of punishment, which did not reduce the self-injurious behaviors. Today, physical punishment is no longer used to decrease self-injurious behaviors, although the command *no* and time-out are still used.

applied behavior analysis (ABA) Application of learning principles derived from operant conditioning; used to increase or decrease specific behaviors.

The use of positive reinforcement is currently the intervention of choice for many professionals.

Prevalence of Autism Spectrum Disorders

As noted earlier, autism spectrum disorders make up the fastest-growing developmental disability category. Yet, there is debate about the prevalence of ASD and the reasons for the recent marked increase (Potvin & Ratto, 2019). As recently as 2012, the reported prevalence of ASD was nearly 1 in 88 children at age 8 (Centers for Disease Control and Prevention [CDC], 2012). A 2018 estimate from the CDC suggests that 1 in every 59 children at age 8 is identified with autism spectrum disorders (Centers for Disease Control and Prevention, 2018). A more recent prevalence estimate of children ages 3 to 17 years infers that 1 in 40 children are diagnosed with ASD (Kogan et al., 2018). According to the CDC, the risk for ASD is almost four times more likely in males than in females. The CDC cautions that its data do not represent a nationally representative sample and, therefore, cannot be generalized to the country as a whole. Still, these numbers give rise to the cry of an “autism epidemic.”

Recent statistics compiled by the U.S. government indicate that approximately 580,700 pupils ages 6–21 were identified as having autism in the 2016–2017 school year (U.S. Department of Education, 2018). Data about individuals with autism were first reported in the 1991–1992 school year with just over 5,400 students recognized (U.S. Department of Education, 2000). Since that time, the number of pupils with autism receiving a special education has increased more than 10,000 percent.

There are currently almost 76,750 preschoolers identified with autism as their primary disability. This number represents 10.1 percent of all youngsters with a disability (U.S. Department of Education, 2018).

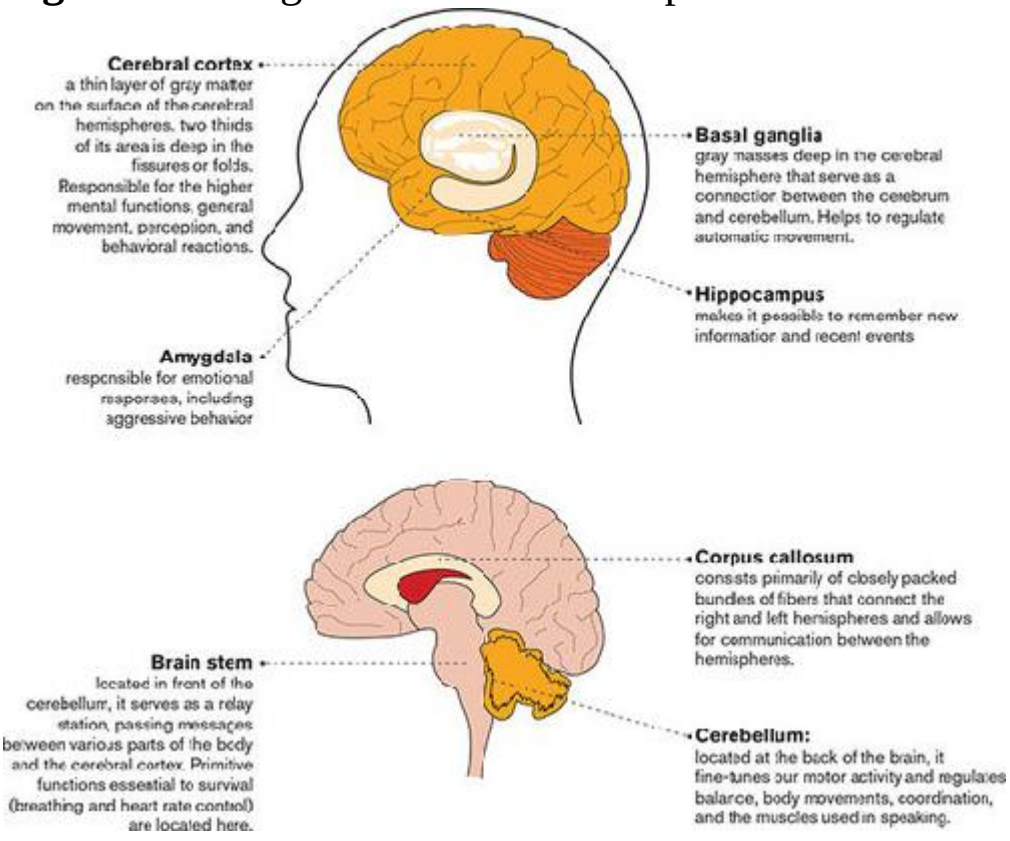
The Centers for Disease Control and Prevention (2019a) considers autism spectrum disorders to be a national health concern because of the number of individuals who are being identified as having ASD and the associated financial costs of dealing with this disability. The number of individuals identified with autism spectrum disorders is, without a doubt, on the rise, although the reasons for this phenomenon are complex and not completely

clear (Potvin & Ratto, 2019). We offer several possibilities. First, clinicians are evaluating and diagnosing individuals more accurately, including individuals with milder forms of the disability that would have gone undiagnosed previously. Second, special education legislation has mandated early intervention and specialized services, bringing more individuals with ASD to the attention of the public schools. In addition, IDEA added a separate category for autism; individuals who were previously labeled as intellectually disabled, learning disabled, or emotionally disturbed are now being appropriately identified as having autism. Third, there is greater public awareness of ASD resulting from increased attention in the popular press and other types of media. Parents are becoming proactive and noticing delays and/or differences in their child's development, and they are bringing their concerns to the attention of professionals. Finally, changing diagnostic criteria used to identify autism spectrum disorders may also account for the increasing prevalence data. Regardless of the explanations put forth, it seems safe to conclude that an authentic increase in the number of children with ASD is occurring.

Etiology of Autism Spectrum Disorders

The etiology of autism spectrum disorders is complex, and in most cases, the underlying pathologic mechanisms are unknown. While the precise cause of ASD may be unknown, current thinking suggests that multiple etiologies are involved. The primary suspected contributing factors include genetic predispositions and abnormal brain chemistry and development, in addition to environmental variables and complications during pregnancy (Autism Society of America, 2019a; Faja & Dawson, 2017; Klinger, Dawson, Barnes, & Crisler, 2014; National Institute of Mental Health, 2018; Ryan et al., 2011).

Figure 10.1 Regions of the Brain Implicated in Autism


Cerebral cortex
a thin layer of gray matter on the surface of the cerebral hemispheres. two thirds of its area is deep in the fissures or folds. Responsible for the higher mental functions, general movement, perception, and behavioral reactions.
Basal ganglia
gray masses deep in the cerebral hemisphere that serve as a connection between the cerebrum and cerebellum. Helps to regulate automatic movement.
Hippocampus
makes it possible to remember new information and recent events
Amygdala
responsible for emotional responses, including aggressive behavior
Corpus callosum
consists primarily of closely packed bundles of fibers that connect the right and left hemispheres and allows for communication between the hemispheres.
Brain stem
located in front of the cerebellum, it serves as a relay station, passing messages between various parts of the body and the cerebral cortex. Primitive functions essential to survival (breathing and heart rate control) are located here.
Cerebellum:
located at the back of the brain, it fine-tunes our motor activity and regulates balance, body movements, coordination, and the muscles used in speaking.

Source: Available at http://neurosciencenews.com/neuroscience-topics/autism/page/2/

The evidence for a genetic contribution to autism spectrum disorders is incontrovertible. Although the exact mode of transmission is unclear, multiple genes are believed to be involved (Faja & Dawson, 2017; Gong, Yan, Xie, Liu, & Sun, 2012; Hall, 2018; Rapin, 2008). Family studies as well as studies of twins clearly support an underlying genetic vulnerability to ASD (Holmboe et al., 2014; Potvin & Ratto, 2019; Wicks-Nelson & Israel, 2015). In some instances, autism spectrum disorders are associated with medical conditions such as fragile X syndrome and tuberous sclerosis (Boucher, 2017; Mash & Wolfe, 2019).

Neuroimaging studies implicate structural abnormalities of the brain in individuals with ASD (Hall, 2018; Hyman & Levy, 2013; Mash & Wolfe, 2019). The cerebellum, cerebral cortex, and brain stem are just some of the regions of the brain in which anomalies are being investigated. Autism spectrum disorders are not the result of abnormalities in just one specific location of the brain; rather, multiple regions are likely involved (Hall, 2018; Lainhart, 2015; Waterhouse & Gillberg, 2014). Figure 10.1 illustrates major brain structures implicated in ASD.

Neurochemical research is also focusing on neurotransmitters such as serotonin, dopamine, and epinephrine and their role in contributing to autism spectrum disorders (Dougherty et al., 2013; Heflin & Alaimo, 2007; Toma et al., 2013; Volkmar & Wiesner, 2009).

Finally, a great deal of attention has focused on a controversial connection between vaccinating children for measles, mumps, and rubella (MMR) and autism spectrum disorders. It was believed that there was a link between thimerosal, a mercury-containing preservative used in pediatric vaccines like the MMR vaccine, and the onset of ASD. (Vaccines developed after 2001 no longer contain thimerosal.) A significant body of empirical research has refuted a causal relationship between the vaccine and the development of autism spectrum disorders; in fact, the original research study was retracted by medical journal *The Lancet* due to investigative improprieties (Hall, 2018; LaBarbera, 2019; Institute of Medicine, 2004, 2012; Potvin & Ratto, 2019).

At the present time, the specific cause of autism spectrum disorders is unknown; most likely multiple biological etiologies and environmental factors are involved. Scientists, however, continue to unravel the complexities of this disorder, and hopefully answers will soon be discovered.

Characteristics of Individuals With Autism Spectrum Disorders

Intellectual Functioning

Autism spectrum disorders are generally described as mild, moderate, or severe depending on the cognitive functioning level of the individual. Research suggests that individuals within the spectrum exhibit a full range of cognitive development (Ryan et al., 2011; Wicks-Nelson & Israel, 2015). Only about 30 percent of children with ASD evidence some degree of intellectual impairment (Centers for Disease Control and Prevention, 2018). It is generally believed that this is due to the benefits of early intervention and greater numbers of higher-functioning children being diagnosed with ASD (Mash & Wolfe, 2019).

About 10 percent of individuals with ASD demonstrate extraordinary skills and talents in areas such as mathematical calculations, memory feats, artistic or musical abilities, and reading. These individuals were originally described as "idiot savants." At one time, *idiot* was the accepted label for someone with an intelligence quotient below 25, and *savant* was derived from the French word *savoir* meaning "to know" (Treffert, 2014). Due to its pejorative connotation, the term **autistic savant** was introduced to describe someone with these highly specialized skills. Other professionals describe these individuals as exhibiting savant syndrome. These "islands of genius" stand in stark contrast to the person's overall limitations (Treffert, 2014). One example of a savant skill was portrayed in the popular movie *Mercury Rising*, where an individual with autism spectrum disorder demonstrated unusual skills in the area of memory and code breaking. In comparison to these autistic savants, only 1 percent of the general population and individuals with intellectual disability possess these skills (Edelson, 2000).

autistic savant An individual with autism spectrum disorder who possesses special skills in areas such as mathematical calculations, memory feats, artistic and musical abilities, or reading.

Some young children with autism spectrum disorders are able to read at an early age.

iStock.com/Jasonfang

Theory of Mind

The **theory of mind** is a cognitive hypothesis that seeks to explain the inability of the individual with autism spectrum disorder to realize that other people have their own unique points of view about the world. Specifically, many individuals with ASD do not understand that others may have different thoughts, plans, emotions, and perspectives from their own (Boucher, 2012; Hutchins et al., 2016). Portrayed as having a form of "mind blindness," persons with ASD lack the ability "to put oneself into someone else's shoes" (Baron-Cohen, 2009, p. 68). The absence of this skill can significantly impede social interactions as well affecting academic performance, particularly reading comprehension and written expression (Bauminger-Zviely, 2014; Southhall & Campbell, 2015).

theory of mind A hypothesis that attempts to explain the inability of the individual with autism spectrum disorder to realize that other people have their own unique point of view about the world—different thoughts, plans, and perspectives from their own.

Social Interaction

Deficits in social interaction include significant impairment in the use of multiple nonverbal behaviors (eye-to-eye gaze, facial expression, body postures and gestures), failure to develop age-appropriate peer relationships, a lack of spontaneous sharing with others, and the absence of social or emotional reciprocity. Often the individual with ASD does not point or show objects of interest to others, shows little or no expressed pleasure in interaction, and lacks coordinated gaze. This person rarely or never directs appropriate facial expressions to others and does not show interest in an object or activity even when reference to the object is accompanied by pointing or facial cues. **Joint attention** is the term typically applied to this deficit in social communication. Impairments with this skill possibly account for the difficulty individuals with autism spectrum disorders encounter with observational learning—they do not readily learn by observing others.

joint attention A social communication deficit common in individuals with autism spectrum disorders, the failure to respond to a gaze or pointing by another person.

A lack of appropriate social skills is a common problem among individuals with autism spectrum disorders.

The Washington Post/Getty Images

Difficulties with social interaction are often devastating to individuals with autism spectrum disorders. Professionals (Davis & Carter, 2014; Potvin & Ratto, 2019; Wicks-Nelson & Israel, 2015) note that even the highest-functioning individuals often experience significant difficulties in developing friendships and relating to others. Persons with ASD also have problems with social exchanges. They may fail to take social norms or the listener's feelings into account. They may rely exclusively on limited conversational strategies or stereotyped expressions, elaborating on some idiosyncratic interest or echoing a previous statement. For example, an individual with ASD may tell a coworker she smells whenever she wears a particular perfume to work. Another person may only interact with you if you talk about his favorite topic—pizza! The individual shows relatively little interest in others unless he or she needs help or responds to questions; there is little or no reciprocal social communication. An individual with these deficits will not ask you how you are feeling or seem to notice if there has been a change in mood. Social impairments in persons with autism spectrum disorders can significantly affect their involvement with others in educational, vocational, and social settings.

Many individuals with autism spectrum disorders engage in stereotypical and repetitive behaviors.

iStock.com/ktaylorg

Communication

A lack of speech has long been considered a hallmark of autism spectrum disorders. It is estimated that as many as half of all children with ASD do not develop functional speech or useful language (Eigsti, de Marchena, Schuh, & Kelley, 2011; Mash & Wolfe, 2019; Tiegerman-Farber, 2009; Wicks-Nelson & Israel, 2015). In individuals with ASD who do speak, "their speech may not be functional or fluent and may lack communicative intent" (Johnson & Myers, 2007, p. 1192). Typical communication deficits include a delay in receptive and expressive language, improper use of pronouns, marked impairment in conversational skills, and stereotyped and repetitive use of language, in addition to echolalia or "parroting" the speech of others (Owens, 2014; Potvin & Ratto, 2019; Wicks-Nelson & Israel, 2015).

The speech of individuals with ASD is clearly abnormal in rhythm, has an odd intonation or inappropriate pitch, and may sound toneless or mechanical. Deficits in the pragmatic or social use of language are also common (Owens, 2014). Approximately 25 to 30 percent of youngsters with autism spectrum disorders begin to use words but then suddenly cease to speak, and this regression typically occurs between 15 and 36 months of age (Johnson & Myers, 2007; Kim, Paul, Tager-Flusberg, & Lord, 2014). This type of language regression is unique to children with ASD.

Some of the early prespeech deficits that may facilitate an early diagnosis and thus early intervention include

- lack of recognition of mother's (or father's or consistent caregiver's) voice;
- disregard for vocalizations (e.g., lack of response to name), yet keen awareness of environmental sounds;
- delayed onset of babbling past 9 months of age;
- decreased or absent use of prespeech gestures (waving, pointing, showing);
- lack of expressions such as "oh oh" or "huh"; [and]

- lack of interest [in] or response of any kind to neutral statements (e.g., “Oh no, it’s raining again!”). (Johnson & Myers, 2007, p. 1192)

Repetitive and Restrictive Behaviors

Repetitive and restrictive behaviors (see Table 10.1, p. 304) include preoccupation with at least one stereotyped and restricted pattern of interest to an abnormal degree, strict adherence to nonfunctional rituals or routines, stereotyped and repetitive motor mannerisms, and preoccupation with parts of objects. Individuals with ASD may

- play with toys in an unintended fashion;
- be rigid about routines or object placements;
- eat few foods or only foods with a certain texture;
- smell food;
- be insensitive to pain;
- be unaware of danger;
- show unusual attachment to inanimate objects; and
- exhibit repeated body movements (hand flapping, rocking, finger licking, spinning, and so on).

Other Characteristics

In addition to the two primary characteristics of autism spectrum disorders, other features that often coexist (comorbid conditions) include problems with concentration, attention, and activity level; anxiety disorders; affective or mood disorders; and learning difficulties. These behaviors are briefly summarized in Table 10.2.

Table 10.2 Associated Characteristics of Individuals With Autism Spectrum Disorders

Table 10.2 Associated Characteristics of Individuals With Autism Spectrum Disorders

Areas of Concern	Behaviors
Concentration and Attention	• Hyperactivity • Short attention span • Impulsivity • Stimulus overselectivity (selective attention)
Anxiety Disorders	• Self-injurious behaviors • Excessive scratching or rubbing • Limiting diet to a few foods • Eating inedible items (pica) • Obsessive-compulsive disorder
Affective Disorders	• Abnormalities of mood or affect (giggling or crying for no apparent reason) • Sleeping problems (difficulties falling asleep, frequent awakening, early morning awakening) • Bed-wetting • Depression, suicidal ideation

Areas of Concern	Behaviors
Learning Difficulties	• Uneven achievement • Impaired executive functioning • Poor reading comprehension • Inadequate receptive/expressive language skills • Difficulty generalizing skills or information

Assessment of Autism Spectrum Disorders

The assessment of an individual with autism spectrum disorder is confounded by the fact that the very behaviors necessary for valid testing—the ability to sit still, pay attention, follow directions, and respond verbally—are often difficult for the individual with ASD. Some professionals believe that these deficits render children with ASD untestable, and they generally disregard the results of formal cognitive and achievement tests. However, most researchers believe that intellectual assessments and achievement tests can be administered effectively and used in planning programs for students with ASD. Behavioral assessments and rating scales can also generate useful information about the individual with autism spectrum disorder without the problems associated with a formal testing situation.

Although medical tests cannot diagnose autism spectrum disorders, a medical examination is often helpful in ruling out specific disabilities such as hearing or vision loss and in diagnosing any associated neurological disorders such as epilepsy, fragile X syndrome, or tuberous sclerosis. Because the characteristics and associated conditions of autism spectrum disorders vary so much, a child suspected of having ASD should ideally be evaluated by a multidisciplinary team including a neurologist, a psychologist, a developmental pediatrician, a speech–language pathologist, and an occupational therapist in addition to a special educator (Wheeler, Mayton, & Carter, 2015). An accurate diagnosis is important in order for the student to receive appropriate interventions and gain access to customized special educational services (Handleman & Harris, 2008; Myers & Johnson, 2007).

Intellectual Assessment

As we noted earlier, one common myth about autism spectrum disorders is that inside each child is a genius. This myth may have arisen because of the presence of extraordinary abilities in a small number of children. Despite the existence of unusual talents, some individuals with ASD exhibit significant cognitive deficits, although a growing number of children with ASD portray typical cognitive abilities (Mash & Wolfe, 2019; Potvin & Ratto, 2019).

For all individuals with ASD, we know that the severity of the symptoms affects the individual's overall level of functioning, particularly in the areas of language and social skills. What is most important is not the person's intellectual capacity but his or her ability to function independently in society. Nevertheless, intellectual assessments are important components in determining a child's eligibility for a special education and other needed services. Therefore, tests measuring intellectual ability as well as checklists assessing adaptive levels of functioning are typically administered as part of an overall assessment battery.

Screening and Diagnosis

There is no specific test to diagnose autism spectrum disorders. Physicians look for behavioral symptoms to make a diagnosis. These symptoms may be noticeable within the first few months of life, or they may appear anytime prior to age 3. In some instances, it is not unusual to find characteristics being recognized later primarily because they were likely confused with the symptoms of other disorders.

In the past decade, researchers have identified several characteristics that are helpful in making an early diagnosis of ASD. It has been shown that a diagnosis of autism spectrum disorders at age 2 is reliable, valid, and stable (Centers for Disease Control and Prevention, 2019a; Johnson & Myers, 2007; Stichter, Conroy, O'Donnell, & Reichow, 2017).

The diagnosis of ASD should include two steps. The first step is a developmental screening (a brief assessment designed to identify youngsters who should receive a more thorough evaluation) and surveillance (a process whereby health care professionals monitor children who may have a developmental disability). It is recommended that screening tests be given to *all* children during their well-child visits at 9, 18, 24, and 30 months of age. Additional screening is warranted if the youngster is at high risk (for example, has a sibling or parent with ASD) or presents characteristics suggestive of autism spectrum disorders. One example of a screening tool is the Modified Checklist for Autism in Toddlers, Revised with Follow-Up (M-CHAT-R/F) (Robins, Fein, & Barton, 2009). This parent (caregiver) 20-item rating scale is designed to identify youngsters between 16 and 30 months of age who may be at risk for ASD and, therefore, in need of a more comprehensive diagnostic evaluation. Almost 50 percent of children considered at risk by this test are subsequently identified as having autism spectrum disorders (Robins et al., 2014).

The second step in the diagnostic process is a comprehensive evaluation by a multidisciplinary team of professionals. Typical evaluations include

clinical and educational observations, caregiver interviews, developmental histories, psychological testing, speech–language assessments, and possibly one or more diagnostic scales. Because ASD is a complex disorder, neurological and genetic testing may be appropriate.

Many instruments have been developed for assessment of autism spectrum disorders, yet no single tool should be used for diagnosing ASD. Diagnostic instruments typically rely on caregivers' descriptions of the child's development as well as direct observation of the individual in both structured and unstructured situations. The "gold standards" of diagnostic assessments include the Autism Diagnostic Observation Schedule (ADOS-2) (Lord et al., 2012) and the Autism Diagnostic Interview–Revised (ADI-R) (Rutter, Le Couteur, & Lord, 2003). The ADOS-2 is a focused play-based assessment appropriate for use with toddlers through adults with ASD. It is balanced by the ADI-R parental/caregiver interview. The findings from this 93-item semistructured interview offer a description of the characteristics of the individual with ASD focusing on the domains of reciprocal social interactions, communication and language, and repetitive, restricted, and stereotypical behaviors. The use of these two instruments in conjunction with each other is considered best practice (Stichter et al., 2017).

Screening for Asperger Syndrome

Screening instruments typically do not accurately identify children with mild ASD, such as those individuals with more functional adaptive skills, intellectual flexibility, or Asperger syndrome. Yet, the Asperger Syndrome Diagnostic Interview (Gillberg, Gillberg, Rastam, & Wentz, 2001) and the Childhood Autism Spectrum Test (formerly known as the Childhood Asperger Syndrome Test) (Williams et al., 2005) are two examples of instruments that offer a reliable means for identifying persons with Asperger syndrome or milder forms of ASD. These two tools focus on social and behavioral impairments in individuals without significant language delays.

Educational Considerations

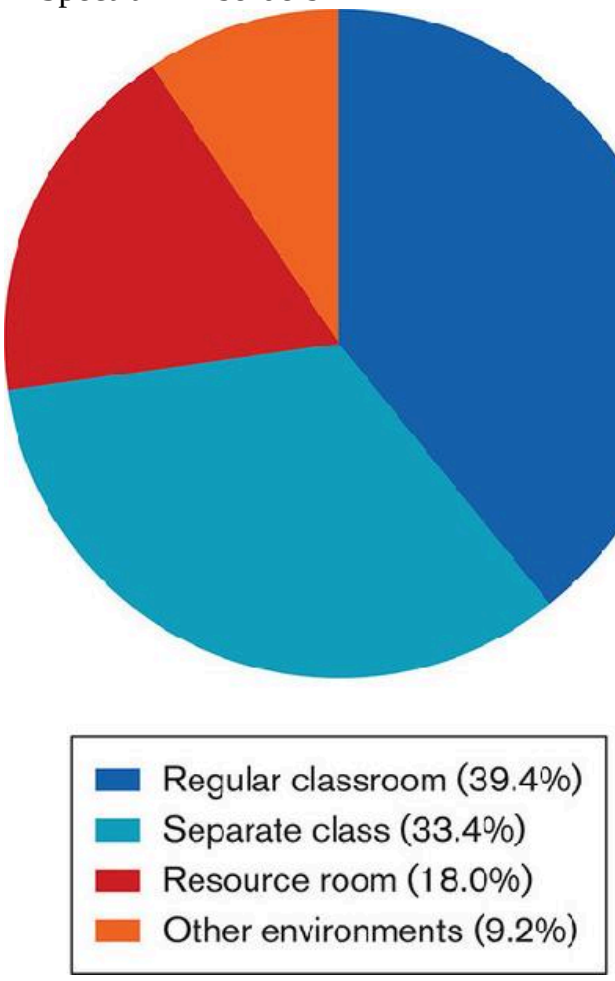
Where Are Individuals With Autism Spectrum Disorders Educated?

During the 2016–2017 school year, one third (33.4%) of school-age students with ASD received services in a self-contained classroom while four out of ten students (39.4%) were assigned to the general education classroom (U.S. Department of Education, 2018). Figure 10.2 profiles where pupils with autism spectrum disorders receive a special education. It is interesting to note that almost twice as many individuals with ASD are educated in a separate class as compared to students receiving services in a resource room.

Instructional Approaches

Individuals with autism spectrum disorders represent a very heterogeneous population. These students typically require a diversity of educational interventions and teaching strategies. It is well documented that effective instructional approaches are structured, predictable, individualized, and geared to the person's level of functioning (Autism Society of America, 2019d; Heflin & Alaimo, 2007; LaBarbera, 2019). Most individuals with ASD demonstrate appropriate behaviors in structured rather than in unstructured situations, and special education programs with more structure are generally associated with better outcomes.

Figure 10.2 Educational Placement of School-Age Students With Autism Spectrum Disorders



Note: Figure represents percentage of enrollment of students ages 6–21 with autism spectrum disorders during the 2016–2017 school year. Other environments represent placement in a separate school, residential facility, homebound/hospital environment, correctional facilities, or parentally placed in private schools.

Information based on data from forty-nine states, the District of Columbia, Puerto Rico, Bureau of Indian Education schools, and outlying areas. Data for Wisconsin not included.

Source: U.S. Department of Education. (2018). *Fortieth annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2018.* Washington, DC: U.S. Government Printing Office.

Generally speaking, the most successful programs for pupils with autism spectrum disorders are those that begin early and are intensive, continuous, and multidisciplinary (Potvin & Ratto, 2019). Many of these effective programs incorporate evidence-based practices, use principles of applied behavior analysis, or rely on structured teaching methodologies. It is not too surprising that the field of ASD is filled with treatment fads and programs that claim to be effective; however, many of these interventions lack empirical support. Fortunately, there is a growing body of research identifying best practice interventions (Hall, 2018; National Autism Center, 2015; Stichter et al., 2017; Wong et al., 2015). See Table 10.3 for a description of some of these programs. Regardless of the approach used, effective instructional programs for pupils with autism spectrum disorders build on the child's strengths while also focusing on the child's areas of interest.

Table 10.3 Representative Research-Based Interventions for Students With Autism Spectrum Disorders

Table 10.3 Representative Research-Based Interventions for Students With Autism Spectrum Disorders

Intervention	Program Description	Demonstrated Efficacy	Website
Developmental, Individual-Difference, Relationship-Based Model (DIR®/Floortime)	Challenging yet child-friendly play experiences that allow clinicians, parents, and educators to learn about the strengths and limitations of the child, therefore gaining the ability to tailor interventions as necessary while strengthening	Increased levels of: • Social functioning • Emotional functioning • Information gathering For ages: Approximately 2–5 years.	www.icdl.com

Intervention	Program Description	Demonstrated Efficacy	Website
	the bond between the parent and the child and fostering social and emotional development of the child. Time requirement: 14–35 hours per week.		
Discrete Trial Training (DTT)	Intervention that focuses on managing a child's learning opportunities by teaching specific, manageable tasks until mastery in a continued effort to build upon the mastered skills. Time requirement: 20–30 hours per week across settings.	Increased levels of: • Cognitive skills • Language skills • Adaptive skills • Compliance skills For ages: Approximately 2–6 years.	http://autismpdc.fpg.unc.edu/evidence-based-practices
Lovaas Model of Applied Behavior Analysis	Intervention that focuses on managing a child's learning opportunities by teaching specific,	Increased levels of: • Adaptive skills • Cognitive skills	www.lovaas.com

Intervention	Program Description	Demonstrated Efficacy	Website
	manageable tasks to build upon the mastered skills. Time requirement: 20–40 hours per week.	• Compliance skills • Language skills • IQ • Social functions For ages: Approximately 2–12 years.	
Picture Exchange Communication System® (PECS®)	Communication system developed to assist students in building fundamental language skills, eventually leading to spontaneous communication. The tiered intervention supports the learner in learning to identify, discriminate between, and then exchange different symbols with a partner as a means to communicate a want.	Increased levels of: • Speech and language development • Social-communicative behaviors For ages: Approximately 2 years–adult	www.PECS.com

Intervention	Program Description	Demonstrated Efficacy	Website
	Time requirement: Typically 20–30 minutes per session.		
Social Stories™	Personalized stories that systematically describe a situation, skill, or concept in terms of relevant social cues, perspectives, and common responses, modeling and providing a socially accepted behavior option. Time requirement: Time requirements vary per story; approximately 5–10 minutes prior to difficult situation.	Increased levels of: • Prosocial behaviors For ages: Approximately 2–12 years.	http://carolgraysocialstories.com
TEACCH Model	Intervention that supports task completion by providing explicit instruction and visual supports	Increased levels of: • Imitation • Perception	www.teacch.com

Intervention	Program Description	Demonstrated Efficacy	Website
	in a purposefully structured environment, planned to meet the unique task needs of the student. Time requirement: Up to 25 hours per week (during the school day).	• Gross motor skills • Hand–eye coordination • Cognitive performance For ages: Approximately 6 years–adult.	

Source: Adapted from J. Ryan, E. Hughes, A. Katsiyannis, M. McDaniel, and C. Sprinkle, "Research-Based Educational Practices for Students With Autism Spectrum Disorders," *Teaching Exceptional Children*, *43*(3), 2011, p. 59.

Although no one instructional strategy is effective with all students with autism spectrum disorders (Autism Society of America, 2019d; Stichter et al., 2017), an emphasis on developing functional communication abilities and appropriate social skills is characteristic of many approaches. For other pupils with ASD, their individualized education programs (IEPs) might focus on academics instruction coupled with self-help skills. In most instances, the various instructional interventions seek to maximize the individual's future independence and successful integration in the community. Refer to the Strategies for Effective Teaching and Learning feature for hints on teaching high-functioning students with autism spectrum disorders.

Strategies for Effective Teaching and Learning
Tips for Teaching High-Functioning Individuals With Autism Spectrum Disorders

- **Avoid abstract ideas whenever possible.** Individuals with autism spectrum disorders frequently have problems with abstract and conceptual thinking. While some students may eventually acquire a few abstract skills, others never will. When abstract concepts must be used, use visual cues, such as gestures or written words, to augment the abstract ideas.
- **Avoid speech students might misinterpret.** Most high-functioning people with autism spectrum disorders use and interpret speech literally. Until you know the capabilities of the individual, it is recommended that you avoid
  - idioms (save your breath, jump the gun, second thoughts, and so on);
  - double meanings (most jokes have double meanings);
  - sarcasm, such as saying, "Great!" after someone has just spilled a soft drink all over the table; and
  - nicknames.
- **Break down tasks.** If a pupil doesn't appear capable of learning a task, break it down into smaller steps, or present the task in several different ways (for example, visually, verbally, and physically).
- **Assist students with organizational skills.** Individuals with autism spectrum disorders often have difficulty with organizational skills, regardless of their intelligence and/or age. Even a "straight A" student with autism

spectrum disorder who has a photographic memory can sometimes be incapable of remembering to bring a pencil to class or remembering a deadline for an assignment. In such cases, assistance should be provided in the least intrusive way possible. Strategies could include putting a picture of a pencil on the cover of the student's notebook or reminders at the end of the day of assignments that are to be completed at home. Always praise the pupil when he or she remembers something he or she has previously forgotten.

- **Prepare students for change.** It is important to prepare the student for all unexpected changes, such as an assembly, a substitute teacher, rescheduling of classes, and so forth. Use a written or visual schedule to prepare for change.
- **Make adjustments for auditory and visual distractions.** Be aware that normal levels of auditory and visual input can be perceived by individuals with autism spectrum disorders as too much or too little. For example, the hum of fluorescent lighting is extremely distracting for some people with autism spectrum disorders. Consider environmental changes, such as removing some of the visual clutter from the room, or seating changes if the student seems distracted or upset by his or her classroom environment.
- **Facilitate group work.** If a class activity involves pairing off or choosing partners, draw numbers or use some other arbitrary means of pairing. You could also ask a class leader whether he or she would agree to choose the individual with autism spectrum disorder as a partner. This should be arranged prior to pairing. The pupil with autism spectrum disorder is most often the individual left with no partner. This is unfortunate because this student could benefit most from having a partner.
- Most importantly, be positive, be creative, and, most of all, be flexible!

Source: Original adaptation from S. Moreno, "Tips for Teaching High-Functioning People With Autism." Available at http://www.aspergersyndrome.org/Articles/Tips-for-Teaching-High-Functioning-People-with-Aut.aspx. Used by permission. For additional recommendations, see https://www.iidc.indiana.edu/pages/Tips-for-Teaching-High-Functioning-People-with-Autism

Making Inclusion Work
Individuals With Autism Spectrum Disorders

Working with children with autism spectrum disorders is often like riding a roller coaster without a seat belt—you never know what will be around the next corner or if the next bump will dump you out of the car. I have found that no two children and no two days are the same where ASD is involved. The needs of our children change on a daily, sometimes hourly, basis. Striving to meet these needs (sensory, anxiety, and food based) and provide an education is a full-time job. In my classroom, there are five adults and ten children ages 5–11. Most of the children are included in the general education setting for some part of their day. Next year, four of our kindergartners and I will take on the challenge of full inclusion for the first time in our county.

Inclusive Education Experience

I find the most difficult challenge facing my students is a fear of autism spectrum disorders. Most general education teachers have no experience with ASD; their only reference is the movie *Rain Man.* Many teachers will refuse to work with my students simply because of their label. To dispel this fear, I arrange for my students to meet with their general education teachers in the week before school starts. This gives the teacher and the child a chance to check each other out. The teachers can see that this student is just a kid, a little odd sometimes, but nothing scary. This also gives the students a chance to see their new room and new teacher before the chaos of the first day. It gives them a reference point to start the year.

When I begin a year with a new teacher, I provide him or her with information about ASD, samples of the child's work, appropriate modifications, and the student's present level of performance. Then we meet over lunch or a snack during the week before school starts and discuss the student. Once teachers put a face to the child's name, they tend to be less afraid of the "autism" part of the experience.

Currently, all of my students receive constant support in the general education setting (an aide or myself), and this seems to help the general education teachers feel more comfortable. Sometimes students will need to leave the room because of behavioral outbursts or breakdowns. Many teachers outside of special education do not feel qualified to handle these situations. I try to model the appropriate responses and encourage the other teachers to ask me questions. Prior to the school year, I make emergency plans with the individualized education program team for each child. During our planning sessions, I tell everyone that no one should attempt to restrain a child if he or she has not been trained. I take responsibility in most emergency situations.

When providing students with sensory strategies in the general education setting, I take into account how distracting the item will be. Sensory strategies should be discussed prior to implementation. General education teachers might not understand the importance of an item and take it away because it is a toy or the child is fidgeting. Strategies used within the general education setting should be discrete and small. Sometimes it is necessary to go in and explain the importance of a sensory item to the other students in the classroom. I have found that doing this eliminates the "I want what he has" battles.

I also provide an in-service for teachers in our county on autism spectrum disorders. This is a great way to reach a wider audience and help teachers who are not in my school. Offering experiences like this helps teachers become more comfortable with the disability. I encourage all of the teachers I work with to attend and am happy to have had several general education teachers from other schools participate. Providing learning experiences like this is a good way to bridge the gap between general and special education.

My students will be in the school system for at least twelve years. Their needs and cognitive skills will change over time; some of our students will be in general education classes with no support by the time they reach the fifth grade. Part of my job as a special educator is to educate my colleagues about the disorder. If we are to advocate for the rights of our students, we have to educate the general population. Autism spectrum disorders are nothing to be afraid of.

Strategies for Inclusive Classrooms

- Bring models of modifications and accommodations to planning sessions—for example, a visual schedule, a test with a word bank. It is more effective to be able to show someone what you are suggesting.
- Provide brief articles about ASD to those teachers who are interested in learning more about the disability.
- Make sure fidgets and other small sensory items meet the students' needs without disrupting the rest of the class.
- Let other students try out the sensory items you bring in.
- Meet with the general education teachers as much as possible and let them know they can ask you to help prepare general lessons as well as modified lessons.
- Constantly assess the success of your students in the general education setting.
- Data are extremely important. Carry a clipboard or sticky notes. You should be able to back up any statement you make about your students.
- Provide social skills training for the students outside the general education setting. It may embarrass students to have social skills lessons with their peers. Sometimes it is better to practice the lesson outside the room and then bring it into the classroom.
- It is imperative to share the responsibilities of the classroom for inclusion to work. The students need to be a shared responsibility; there should be no "my" students and "your" students. Let the teacher know that you are there for all students.

Working With Parents and Families

In the field of autism spectrum disorders, working with the parents is essential to success. I often go on home visits with the younger students. This way, I can model the responses to certain outbursts or inappropriate behavior. I have also gone to restaurants and grocery stores with the families to model behaviors. I have found that it is more successful to model than to just tell a parent what to do.

It is also important for the parents to become familiar with the general education teacher and classroom. In an inclusive program, the parents should feel comfortable talking to the general education teacher as well as the special education teacher. When the special education teacher serves as a go-between (with parents and other teachers), communication breaks down. Parent–teacher conferences should be held with all the members of the team and not just one teacher. It is important to have the parents support each other. We started a parent support group this year. This provided the parents with someone other than me to turn to with questions and problems. I began it at the beginning of school, and then a parent took over. Parents need to talk to each other and compare experiences; having a child with such an intense disability can sometimes make parents feel isolated and helpless.

Special education teachers should familiarize themselves with the local resources for parents and families. Social services, food banks, and local agencies can be excellent resources. However, many families are too overwhelmed and do not know where to look for outside help.

Advice for Making Inclusion and Collaboration Work

My advice would be to always remember that kids are kids. A disability is only part of a child, and while it may shape most of his or her world, a kid is still a kid. Children still need love and support. You as the teacher need to know how to provide these things to your students and still encourage academic growth. Learn about the disability as much as possible, but learn everything about the kids.

—*Sarah Reynolds*

Kindergarten–Fifth Grade

Leslie Fox Keyser Elementary School

Warren County, VA

Strategies for Effective Teaching and Learning
Social Stories™

Students with autism spectrum disorders typically experience difficulty interpreting social situations. These individuals are frequently unable to accurately assess and respond to various social, behavioral, and environmental cues. Social Stories™ represent an increasingly popular strategy for ameliorating these deficits and, in turn, enhancing the social skills of students with autism spectrum disorders. This intervention technique is also particularly helpful in facilitating the integration of pupils with ASD in inclusive learning environments.

A Social Story™ is an individually designed story aimed at increasing the individual's awareness and understanding of social situations and the perspectives of others while teaching appropriate responses and self-management techniques. The basic steps necessary for developing a Social Story™ include

1. targeting a specific problematic social situation,
2. identifying salient features of context and setting, and
3. sharing this information with the individual and others.

The following is an example of a Social Story™ that is designed to explain to a student when it is appropriate to run at school:

Running

I like to run. It is fun to go fast.

It is OK to run when I am playing outside.

I can run when I am on the playground.

I can run during P.E.

It is not OK to run when I am inside, especially at school.

Running in the hallways is not safe.

Teachers worry that other people may get hurt if I run into them.

When people are inside, they walk.

I will try to walk in the hallways and only run when I am outside on the playground.

Writing a Social Story™

Begin by observing the student in the situation you hope to address. Let the pupil's perspective tell you which aspects of the situation should be the focus of the story. Include those things that usually occur in the social situation, but also consider possible variations.

There are generally four types of sentences used in writing Social Stories™:

- *Descriptive* sentences objectively define where a situation occurs, who is involved, what that person is doing, and why.
- *Perspective* sentences describe the reactions and feelings of others in a given situation.
- *Directive* sentences are positively stated, individualized statements of desired responses. They may begin with "I can try . . ." or "I will work on . . ." Try to avoid sentences starting with "Do not . . ." In the above example, the final sentence is the directive sentence.
- *Affirmative* sentences express a commonly shared cultural belief, opinion, or value.

A Social Story™ should have three to five descriptive and perspective sentences for each directive sentence. Avoid using too many directive sentences. They may be lost without adequate context.

Presenting a Social Story™

Customize the language and the presentation to students' abilities. Young children and nonreaders will need pictures to accompany the story. The pictures need to be very simple and very specific. Delete extraneous details and backgrounds. These children will also require larger fonts and less information on each page. A storybook is a good idea. For older pupils and readers, the story can be presented on one page. Alternatively, each sentence can be mounted on black construction paper and bound in book format while other students may be comfortable using an iPad.

Present the story in a calm, stress-free environment. Be consistent. Present the story once each day, preferably right before the particular event. Once the story is mastered and the individual has incorporated it into his or her social repertoire, slowly decrease its use.

The empirical evidence on the effectiveness of Social Stories™ is growing. It is currently considered a validated or evidence-based practice.

Source: Original adaptation from "Social Stories," Center for Autism and Related Disabilities, University of Florida.

For additional information on using Social Stories™ with children with autism spectrum disorders, visit the Gray Center for Social Learning and Understanding (http://carolgraysocialstories.com) and the Vanderbilt Kennedy Center (https://vkc.mc.vanderbilt.edu/assets/files/tipsheets/socialstoriestips.pdf).

Strategies for Effective Teaching and Learning
Using Applied Behavior Analysis in the Classroom: A Token Economy

In simplest terms, applied behavior analysis (ABA) is the application of behavioral principles (for example, positive reinforcement, punishment) for the purpose of modifying an individual's behavior. A token economy is but one example of the application of ABA. The following table provides steps for an evidence-based ABA intervention—a token economy system, which can be particularly useful when working with students with autism spectrum disorders in an inclusive setting.

Token Economy System	
Steps	Example

Token Economy System	
Steps	Example
1. Identify a behavior you would like the student to learn or engage in more often. Make sure the behavior is well defined and measurable.	Sebastian frequently blurts out during group instruction and other inappropriate times during the school day. You would like Sebastian to raise his hand instead.
2. Collect data on the behavior for a few days by counting how often and/or, depending on the behavior, how long it occurs.	After counting how often Sebastian raises his hand each day, you record that he raises his hand an average of two times per day and blurts out without being called upon an average of seventeen times per day.
3. Determine potential reinforcers (items the student enjoys and will be motivated to demonstrate the behavior in order to obtain). You may discover this by asking the student or his or her parents, through observation, or by providing a sample of items and recording the ones the child selects most often. Make sure you select age-appropriate items.	You meet with Sebastian briefly at the end of the day, show him the contents of your treasure box, and ask him which items he might like to earn. He selects pencils with his favorite sports team logo, a yo-yo, and hard fruit candy. He also says he loves baseball trading cards, and you make a note to purchase some.
4. Create a choice board with a list of potential reinforcers. This may be a picture list for students who cannot read or a written list for readers.	You take pictures of the items Sebastian selected as well as a few other items you have seen him play with during free choice and create a “reward board” displaying all the pictures.
5. Prepare the token economy materials. You will need a. age-appropriate tokens (stickers, counters, marbles, check marks, coins, etc.) and b. a token-exchange system (e.g., an index card to collect stickers or check marks, a laminated board with Velcro to	Sebastian is 7 years old and loves superheroes. You let him choose whether he wants to collect poker chips or mini superhero stickers. He selects the superhero stickers. You prepare an index card with a picture of a raised hand and “I am working for _____” at the top and ten “X” marks at the bottom.

Token Economy System	
Steps	Example
adhere counters on, or a small jar to place marbles or counters in).	
6. Teach the student the token economy system by a. explaining the system to the student, b. displaying the rules for earning tokens, and c. establishing how many tokens must be earned to exchange for a reward and when the exchange can/will occur.	You explain to Sebastian you want him to raise his hand during group instruction lessons and that you will give him a sticker to place on his index card for following this rule. At the beginning of each day, he can identify what he would like to earn and write it at the top of his index card. When he receives ten stickers, he can exchange them for his reward.
7. Implement the token economy system and take data on the student's behavior. Be sure to a. modify the choices by adding or rotating reward options to help ensure the items maintain value to the student, b. consistently provide tokens for the correct behavior, and c. implement the system in different settings once the student begins to regularly demonstrate the behavior.	Sebastian is excited to begin the token economy system. He selects the yo-yo as his choice on the first day. He raises his hand several times during each group lesson, allowing him to collect all ten stickers and exchange them for the yo-yo at the end of the day. After several days of using the token economy system in your classroom only, you meet with his special-area teachers (art, P.E., music, etc.) and ask if they are willing to use the system in their class. Soon he is consistently raising his hand throughout the school day in several settings.
8. Once the student is demonstrating the behavior consistently and independently, begin to fade the token economy system (slowly reduce the use of the system until it is no longer needed). You can do this by	Eventually, you begin to provide stickers to Sebastian on an average of three hand raisings, then every five or so. Whenever he raises his hand but does not receive a token, you are sure to provide him praise or a high-five for hand raising. Eventually, you are able to stop using the index card and provide him occasionally with a reward for "a great day of rule following." Within a few weeks, you

Token Economy System	
Steps	Example
a. providing social praise when the behavior occurs, b. increasing the number of behaviors the student must display before receiving a token, and c. eventually stopping the use of the token economy system.	cease providing rewards all together. Now you continue to praise him occasionally for remembering to raise his hand, and he does so consistently without need for reminders.

Note: The authors gratefully acknowledge the contribution of Julie L. Thompson, Michigan State University.

Source: Adapted from J. Neitzel, *Steps for Implementation: Token Economy Programs* (The National Professional Development Center on Autism Spectrum Disorders, Frank Porter Graham Child Development Institute, University of North Carolina, Chapel Hill, 2009).

Technology and Individuals With Autism Spectrum Disorders

Technology for students with autism spectrum disorders falls along multiple lines, including **augmentative and alternative communication (AAC)** devices, prompting devices (for example, video modeling, audio prompting), and **computer-assisted instruction (CAI)** (Bouck, Satsangi, Doughty, & Courtney, 2014). Additionally, considerable attention is focused on using mobile technology devices for pupils with autism spectrum disorders, including cell phones, iPods, and iPads (Ayres, Mechling, & Sansosti, 2013).

AAC is commonly used for individuals with autism spectrum disorders and, like all technology for students with disabilities, runs the gamut from low-tech to high-tech. One popular low-tech AAC device is the Picture Exchange Communication System® (PECS®) (Bondy, 2012). PECS® involves the presentation or selection of a picture as a means of communication. Not only can picture symbols be used for communication for students with autism spectrum disorders, but also picture symbols are commonly used to create picture schedules (Bondy, 2012) (see Figure 10.3).

High-tech AAC devices such as **speech-generating devices (SGDs)** or **voice output communication aids (VOCAs)** are also frequently used by individuals with autism spectrum disorders who do not possess verbal communication skills (see Figure 10.4). High-tech AAC devices are tools that present speech when an icon or button is selected or words are typed. These devices vary in cost and functionality; for some technologies an individual needs to record the words or phrases into the tool while in other instances synthesized speech is produced (Bouck, 2017). AAC devices are increasingly being accessed through mobile technologies (for example, iPod, iPad), through an app called Proloquo2Go® (AssistiveWare, 2019). Proloquo2Go involves students selecting symbols to generate speech, similar to stand-alone, high-tech AAC devices.

speech-generating device (SGD) A high-tech augmentative or alternative communication device capable of generating speech.

voice output communication aid (VOCA) A device that can be programmed to produce speech.

Self-operated prompting devices are another example of popular technology for students with autism spectrum disorders. Prompting devices are tools that provide prompts to individuals as they work to complete a task. Over the years, prompting devices have undergone transformations—beginning as static picture-based tools (for example, picture symbols) and then moving to audio tools (for example, audio recorders) and now video tools (for example, DVD players) (Mechling, Gast, & Seid, 2010). (Refer back to page 175 for information on how to create self-operated prompting systems.) Today, as with other AAC devices, prompting devices utilize mobile technologies (for example, iPad) (Ayres et al., 2013).

CAI is an area where technology is often incorporated for learners with autism spectrum disorders. Researchers support the use of CAI in the academic domains of literacy, science, and mathematics (Bouck et al., 2014; Pennington, 2010; Smith, Spooner, & Wood, 2013). Bouck and her colleagues (2014), for example, successfully taught elementary students with autism spectrum disorders addition and subtraction through use of virtual manipulatives with the National Library of Virtual Manipulatives (http://nlvm.usu.edu/en/).

Spotlight on Technology

Students with autism spectrum disorders may benefit from support with social skills. Technology can provide options to teach and support social skills and positive social behavior instruction to students with disabilities, including students with autism spectrum disorder.

App	Information
Arthur's Big App (iOS & Android)	• Produced by the Public Broadcasting Service (PBS) • Provides games that support positive social skills • https://pbskids.org/apps/arthurs-big-app.html
What Would You Do at School If . . . Fun Deck (iOS)	• Created by Super Duper Publications • Provides visual and audio flash cards that present a scenario (e.g., you see a classmate cheating) and asks students what they would do
StoryMaker™	• Presents social stories to students using text, pictures, and audio • www.handholdadaptive.com/StoryMaker.html

Source: Adapted from E. Bouck, *Assistive Technology* (Thousand Oaks, CA: Sage, 2017).

Figure 10.3 Picture Communication Aids

Source: Courtesy of Pyramid Educational Products, Inc.

Figure 10.4 Example of a High-Tech AAC Speech-Generating Device

Services for Young Children With Autism Spectrum Disorders

There is no known cure for autism spectrum disorders, but developmentally appropriate educational programming in the early years can play a significant role in enhancing functioning in later life. Identifying and diagnosing ASD early can provide access to appropriate services and interventions that result in a better prognosis (Autism Society of America, 2019c; Centers for Disease Control and Prevention, 2019a). In addition to receiving appropriate services, another benefit of early identification is the decreased need for restrictive educational placements in the future (Gargiulo & Kilgo, 2020).

Early Intervention Services

Federal law mandates services for young children with disabilities, including identification, assessment, and customized interventions. Early intervention services, tailored to the youngster’s unique needs, typically include a structured educational and behavioral approach with related and specialized services provided as necessary. Examples of these related and specialized services may include, but are not limited to, the following:

- Nutrition services
- Occupational therapy
- Parent counseling
- Recreational therapy
- School nursing services
- Speech and language therapy

Early intervention for the young child with autism spectrum disorder begins with the development of an individualized family service plan (IFSP), which typically addresses needs in the areas of social skills, functional skills (dressing, toilet training, self-feeding), communication, and behavior. No one program is applicable to all children with ASD; the strengths and needs of each child, and the wishes of his or her family, must be considered in the development of an IFSP. Contemporary thinking strongly suggests that the earlier intervention begins, the better the outcome (Mash & Wolfe, 2019).

Preschool Children With Autism Spectrum Disorders

Many preschool children with autism spectrum disorders lack even the most basic communication skills. For instance, they may not come when they are called, may not recognize their name, may have no idea of the notion of carrying out an activity upon either verbal or nonverbal request, and may have no concept of “First you do this, and then this happens.” Safety also becomes an issue, as preschool children with ASD are able to run, open doors, and climb, but do not come when called, understand “no,” or comprehend the possible dangers of busy streets or getting lost.

In planning for preschool children versus older children with ASD, the curriculum is usually less well defined. Even structured teaching needs special adaptation at the preschool level because of the behaviors that are targeted. Behavioral models provide useful starting points for establishing control of young children’s attention and reducing interfering behaviors. It is important, however, to teach both communication and social skills as part of the overall program. The use of evidence-based practices is crucial for enhancing academic skills as well as the social development of preschoolers with autism spectrum disorders (Barton, Lawrence, & Deurloo, 2012).

Multiple instructional programs are available for preschool children with autism spectrum disorders. The most effective interventions incorporate a combination of developmental and behavioral approaches (Hyman & Levy, 2013). Highly structured programs, like those associated with behavioral strategies, produce long-lasting and significant gains for many young children with autism spectrum disorders (Hall, 2018; Myers & Johnson, 2007).

Many professionals recommend a minimum of twenty-five hours per week of intervention (Levy, Kruger, & Hyman, 2008). Effective programs for preschoolers with ASD typically share the following representative features:

- Emphasis on developing communication as well as social skills
- High degree of family involvement
- Intensive behavioral interventions
- Involvement with typically developing children
- Interdisciplinary interventions
- Low teacher (staff)–student ratios
- Structured/organized learning environment
- Ongoing assessment of progress
- Well-planned transition experiences (Levy, Kim, & Olive, 2006; Volkmar & Wiesner, 2009)

Transition Into Adulthood

As adolescents with autism spectrum disorders mature, they face the same developmental, psychological, social, and personal issues as their typical peers. However, their ability to deal with these issues is confounded by their unresolved communication, behavior, and social deficits. While adolescents with ASD may show a greater interest in other people, many still lack the most fundamental skills to form friendships (Hendricks & Wehman, 2009; Schall, Targett, & Wehman, 2013). Unfortunately, as their interest in others increases, their opportunities for structured social interactions usually decreases as they begin to transition from high school. Opportunities to participate in community programs are also frequently limited by the individual's lack of leisure and recreational skills and the limited availability of programs.

IDEA 2004 requires that school personnel assist the family with planning for transition from school beginning no later than age 16. It is important that both families and school personnel begin the transition planning as early as possible to address the myriad of potential problems that often confront adolescents with autism spectrum disorders.

The movement from the secure world of school to the uncertainty of adulthood is often challenging and stressful. For the adolescent with autism spectrum disorder, it may seem to be an especially demanding and complex task. Transition planning is designed to help facilitate the movement from school to adulthood. It is a coordinated process that includes the student, his or her family, education professionals, and representatives from a variety of community and social service agencies. Transition planning must be based on the individual's current and future needs, taking into account the student's abilities, preferences, competencies, and interests (Bross & Travers, 2017). (See the accompanying Insights feature.) To ensure that long-term goals are fulfilled, it is vitally important that the individual with ASD meaningfully participate in the development of his or her own transition plan. The student's involvement is often critical to the success of

the planning process (LaBarbera, 2019). Yet, only about one third of transition planning meetings include the individual with autism spectrum disorder (Mazefsky & White, 2014). Transition plans for the adolescent with ASD typically include goals that address daily living skills, communication and social skills, living arrangements, postsecondary education, community participation, and the development of vocational competencies, including interpersonal skills appropriate to the workplace (Schall et al., 2013; Szidon, Ruppar, & Smith, 2015). Obviously, collaboration and coordination among all stakeholders is crucial to ensure postschool success. Unfortunately, many young adults with ASD exit high school without the requisite skills and experiences, which consequently generates dismal outcomes (Kucharczyk et al., 2015).

Insights
Transition Planning: Questions to Consider

When thinking about transition from high school, sometimes it is helpful to start the process with a list of questions to act as a springboard for discussion. The following questions can guide the individualized education program team in transition planning for young adults with autism spectrum disorders anticipating life beyond high school.

1. To what degree is the individual self-determined—that is, able to make personal decisions and accept responsibility for those decisions?
2. What is the student's and family's vision for this person's future?
3. Where does he or she wish to live and work as an adult?
4. What critical skills and abilities are needed to create an enviable life for this person?
5. What skills and abilities does the student currently possess that match his or her vision?
6. What additional training or skills does the individual require in order to fulfill his or her vision?
7. Is this person able to live independently and care for him- or herself?
8. What is the depth of the student's experiences in the community and world of work?
9. What resources are available that will increase the likelihood that this individual will achieve his or her vision?
10. What experiences, linkages, and resources are needed to ensure a smooth transition to adult life?

Source: Adapted from C. Schall, P. Targett, and P. Wehman, "Application for Youth With Autism Spectrum Disorders," in P. Wehman (Ed.), *Life Beyond the Classroom*, 5th ed., (Baltimore, MD: Paul H. Brookes, 2013), p. 457.

Adults With Autism Spectrum Disorders

Because ASD is a lifelong developmental disorder, many individuals with autism spectrum disorders are unable to either live or work independently as adults. Although symptoms may decrease with age, a majority of adults with ASD continue to manifest significant impairments (Gabriels, 2011; Seltzer et al., 2011). Only a small number of individuals with autism spectrum disorders are able to achieve a degree of independence in adulthood (American Psychiatric Association, 2013; Howlin, 2014).

Adults with ASD, and their families, are typically confronted with two main issues of adulthood—living arrangements and employment possibilities. In both instances, the unique characteristics and ability level of the individual will influence decisions and options.

Regarding living arrangements, if the person is unable to live independently, families and the individual, if capable, have many decisions to make. Choices range from residential (institutional) care, to foster care, to group home settings, to supervised apartment living. In some situations, there is the possibility of living with an adult sibling as parents age. Generally speaking, there is no one “best” or “correct” placement. The needs of the adult with ASD and the availability of community resources will likely influence decisions, keeping in mind that maximum independence and integration in the community is a goal for many adults with autism spectrum disorders.

Some adults with autism spectrum disorders live in group homes located in residential neighborhoods.

AP Photo/Gene J. Puskar

Employment Options

Large numbers of adults with autism spectrum disorders experience high unemployment or underemployment despite the fact that many of these individuals are capable of work (Chen, Sung, & Pi, 2015; Gerhardt & Lainer, 2011; Hendricks & Wehman, 2009). Persons with ASD often possess the job skills needed to be successful in the workplace especially if the requirements of the job are aligned with the individual's strengths and interests. Yet some adults experience difficulty in managing the social requirements of the work site; for instance, they may greet a coworker with a hug rather than a handshake. "Soft job skills," like how to appropriately interact with a supervisor, tolerating change, and appropriate conversational topics during a break, may be as crucial or slightly more important for successful employment than the actual job or "hard" skills (Schall et al., 2013).

Two common employment options for the adult with ASD who cannot work independently are sheltered workshops and supported employment. Sheltered workshops are supervised, structured settings that provide training in specific job skills. Typically, businesses contract with a sheltered workshop to complete a particular task in a contracted length of time. Sheltered workshops have many disadvantages, including low wages, minimal vocational training, and a lack of interaction with typical peers. Unfortunately, for many adults with autism spectrum disorders, sheltered workshops tend to be a final job placement rather than a step toward employment in the community.

In a supported employment model, the adult with autism spectrum disorder works at a job in the community alongside typical coworkers. Intensive training, assistance, and support are provided by a job coach or supported employment specialist. As the individual with ASD gains competency on the job, support is gradually faded. A job coach may supervise one or more adults for all or part of the day. In addition to offering on-site training, the employment specialist may assist with transportation needs, provide

information to typical coworkers about individuals with ASD, and act as a liaison between family members and the employer. Over the years, an increasing number of individuals with autism spectrum disorders have secured employment in the community as a result of supported employment initiatives (Gerhardt, Cicero, & Mayville, 2014; Hendricks & Wehman, 2009). Employment opportunities typically range from food services worker, to retail possibilities, to custodial and housekeeping positions as well as entry-level white-collar jobs.

Family Issues

Autism spectrum disorders can affect the entire family constellation. Parents, as well as siblings, are often confronted with significant and potentially lifelong challenges. Usually by the infant's first birthday, parents and other family members are aware that something is different with the child. In some instances, by the time the parents receive a diagnosis of ASD, they have spent years dealing with various professionals searching for answers and the cause of their child's disability. As a consequence, confusion, frustration, and even anger are part of their daily existence. A diagnosis of ASD is an important step in parents' quest to understand their son or daughter's disability. It can also give parents a sense of direction and permits them to seek needed services and support, not only for their child but also for themselves.

Mothers are typically the primary caregivers for the child with autism spectrum disorders, although fathers are often helpful with specific tasks. Not surprisingly, the presence of a child with ASD sometimes exerts a pervasive and stressful effect on mothers and other family members while directly or indirectly impacting many aspects of family life (Boucher, 2017; Ekas & Whitman, 2011; Fiske, Pepa, & Harris, 2014). Some parents find benefit from joining a support group. Other parents of children with ASD are often a tremendous source of information, resources, and emotional support.

Many parents struggle with the demands placed on their typical children by their brother or sister with ASD. It is important that siblings understand the diagnosis of ASD on a developmentally appropriate level. As typical children grow, information needs to be continually presented and discussed with them rather than relying on a "one-shot" explanation. Also, as parents age, siblings need to understand what plans have been made for the individual with ASD and what, if any, is their responsibility (Autism Society of America, 2019e; Fiske et al., 2014).

Research on siblings of children with autism spectrum disorders is somewhat limited, and it has produced mixed results (Banda, 2015; Fiske et al., 2014; Meadan, Stoner, & Angell, 2010). Some studies suggest that siblings show no negative effects while other research has shown that siblings of children with ASD develop adjustment problems. Sibling support groups are a popular vehicle for supporting siblings and giving them needed information about ASD. These support groups encourage the siblings of individuals with autism spectrum disorders to express their feelings and to ask questions about ASD.

Issues of Diversity

Autism spectrum disorders know no racial, ethnic, or social boundaries. ASD occurs in all races, societies, socioeconomic groups, and types of families (Centers for Disease Control and Prevention, 2019a). As we saw earlier, no social or psychological characteristics of parents or families have proven to be associated with autism spectrum disorders.

Trends, Issues, and Controversies

Parents of individuals with autism spectrum disorders are exposed to a variety of treatments that promise dramatic improvement or “cures” for their child. With so many possible causes of ASD, there are likely as many possible treatments that may help the family in caring for its child. Unfortunately, research has not advanced to the point that the cause can always be matched to an appropriate treatment. Families often rely on anecdotal reports of treatments rather than waiting for the research to support the claims of improvement. Who can blame them? As long as the treatment does not harm the child, some families do not believe they can wait for science to catch up and miss an opportunity that could make a difference in the life of their child. Many parents stay up-to-date on treatment methodologies and current debates using the internet. Unfortunately, these parents frequently “become susceptible to the promotions of specific therapies that usually have little to offer other than hope” (Marcus, Kunce, & Schopler, 2005, p. 1058).

In the language of the ASD community, unproven techniques and therapies fall under the heading of **complementary and alternative medicine (CAM)** (Centers for Disease Control and Prevention, 2019b; Warren & Stone, 2011), also known in some circles as complementary health approaches (Challman, 2019). A multitude of treatment options, both biological and nonbiological, are considered CAM therapies, including, for example, dietary and vitamin treatments, hormone injections, facilitated communication, music therapy, and auditory integration training, along with optometric training, hyperbaric oxygen therapy, and weighted vests. While case reports and anecdotal evidence lend credence to the popularity of these interventions, the scientific literature, which requires the use of a randomized, double-blind, placebo-controlled study, does not support these treatments (Hyman & Levy, 2011, 2013; Research Autism, 2019; Smith, Oakes, & Selver, 2014). What is regrettably lacking in the field of autism spectrum disorders are “large-scale, rigorously designed, replicated intervention studies that compare the major autism intervention

approaches" (Marcus et al., 2005, p. 1059). Until this evidence is available, parents and professionals alike need to carefully evaluate treatment options for individuals with autism spectrum disorders. Families should be especially cautious of a treatment strategy or intervention if they encounter

complementary and alternative medicine (CAM) Treatment strategies and interventions for individuals with autism spectrum disorders that lack empirical support.

- treatments that are based on overly simple scientific theories;
- therapies that claim to be effective for multiple, unrelated conditions or symptoms;
- claims that children will respond dramatically and some will be cured;
- use of case reports or anecdotal data rather than carefully designed studies to support claims for treatment;
- lack of peer-reviewed references or denial of the need for controlled studies; or
- treatments that are said to have no potential or reported adverse effects. (Myers & Johnson, 2007, p. 1173)

Parents and professionals alike can locate information about the scientific validity of CAM treatments at the National Institutes of Health's National Center for Complementary and Integrative Health website at http://nccih.nih.gov.

Chapter in Review

Defining Autism Spectrum Disorders: An Evolving Process (Learning Objectives 10.1 and 10.2)

- The field of autism spectrum disorders is still relatively new, with the first clinical description of ASD appearing in the literature in 1943.
- Autism spectrum disorders were not described as a distinct clinical category until 1977.
- The DSM-5 characterizes ASD as a neurodevelopmental disorder.
- IDEA included autism as a separate diagnostic category in 1990. The definition of autism in IDEA 2004 parallels the description of autism spectrum disorder in the DSM-5.

Etiology of Autism Spectrum Disorders (Learning Objective 10.3)

- At the present time, we do not know the cause of ASD.
- Current research suggests genetic contributions, structural abnormalities of the brain, and environmental variables as possible causes of autism spectrum disorders.
- According to the federal government, approximately 657,000 pupils ages 3–21 were identified as having autism spectrum disorders during the 2016–2017 school year.
- The number of individuals exhibiting ASD has risen dramatically.

Characteristics of Individuals With Autism Spectrum Disorders (Learning Objective 10.4)

- Three cardinal characteristics portray autism spectrum disorders: impaired social interaction, repetitive and restricted behaviors, and communication deficits.
- Many individuals with autism spectrum disorders exhibit some degree of intellectual impairment.

Assessment of Autism Spectrum Disorders (Learning Objective 10.5)

- There is no specific test to diagnose ASD. A multidisciplinary team of professionals is often involved in assessing individuals suspected of having autism spectrum disorders.
- Behavioral assessments and rating scales are frequently used when evaluating individuals with autism spectrum disorders.

Educational Considerations (Learning Objective 10.6)

- One third of all school-age students with autism spectrum disorders receive services in a self-contained classroom while four out of ten pupils are educated in the general education classroom.
- Individuals with ASD require structured educational programs. Behavior intervention strategies are often used with students with autism spectrum disorders.
- There are a growing number of evidence-based practices.

Technology and Individuals With Autism Spectrum Disorders (Learning Objective 10.7)

- Various low- and high-tech devices are assisting individuals with autism spectrum disorders overcome communication deficits and experience success in the classroom.

Services for Individuals With Autism Spectrum Disorders Across the Life Span (Learning Objective 10.8)

- Early intervention makes a positive difference in the life of youngsters with autism spectrum disorders.
- Early intervention programs typically address social skills, communication deficits, and behavioral issues.
- Transition planning for adolescents with ASD must be based on the individual's current and future needs and goals.
- Transition plans often focus on daily living skills, communication and social skills, living arrangements, community participation, and the development of vocational competencies.
- Living arrangements and employment options are two areas of concern for many adults with ASD.

Trends, Issues, and Controversies (Learning Objective 10.9)

- The field of autism spectrum disorders is replete with unproven therapies and strategies that are identified as complementary and alternative medicine.

Study Questions

1. Describe the DSM-5 definition of autism spectrum disorders and compare it to the IDEA definition of ASD.
2. Prior to the acknowledgment of genetic and neurological causes of autism spectrum disorders, what were the prevailing theories and treatments?
3. Why is the prevalence of ASD increasing?
4. List three possible causes of autism spectrum disorders.
5. What does the term *autistic savant* mean?
6. Identify the three cardinal characteristics of ASD.
7. Detail the characteristics of the most common interventions used to educate individuals with autism spectrum disorders.
8. What are the key issues related to transitioning into adulthood for individuals with ASD?
9. Describe the issues that families typically deal with when they have a child with autism spectrum disorders.
10. How is technology being used with individuals with ASD?
11. What is complementary and alternative medicine? Describe the type of research that is needed to rigorously evaluate treatment options for individuals with autism spectrum disorders.

Key Terms

autism spectrum disorders, 301
Asperger syndrome, 303
psychogenic theories, 305
applied behavior analysis (ABA), 306
autistic savant, 308
theory of mind, 309
joint attention, 309
augmentative and alternative communication (AAC), 320
computer-assisted instruction (CAI), 320
speech-generating device (SGD), 321
voice output communication aid (VOCA), 321
complementary and alternative medicine (CAM), 327

Learning Activities

1. Observe students with autism spectrum disorders in a special education setting and in an inclusive learning environment. What are the advantages and disadvantages of both educational settings? What kinds of educational interventions did you observe in each location? Which type of educational environment would you want for your child?
2. Participate in a local support group for individuals with autism spectrum disorders. Listen to the families' concerns and needs. Is there something you or your friends could do to help, such as providing respite care? Have you ever considered extending your friendship to an adult with ASD? Consider joining a support group.

Organizations Concerned With Autism Spectrum Disorders

Autism Society of America

www.autism-society.org

Autism Speaks

www.autismspeaks.org

Division on Autism and Developmental Disabilities, Council for Exceptional Children

www.daddcec.org

Indiana Resource Center for Autism

www.iidc.indiana.edu/index.php?pageId=32

Kennedy Krieger Institute

www.kennedykrieger.org

Ohio Center for Autism and Low Incidence

www.ocali.org

Reflecting on Standards

The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Learning Environments (CEC Initial Preparation Standard 2.2)

Reflect on what you have learned about the social interaction difficulties individuals with autism spectrum disorders sometimes have. If you were to have a student with autism spectrum disorders in your class, how might you encourage him or her to participate in group and one-on-one interactions with other students? How might you modify assignments to allow for positive social interaction?

Focus on Collaboration (CEC Initial Preparation Standard 7.3)

Reflect on what you have learned about inclusion of students with autism spectrum disorders in a general education classroom. If you were to teach at a school where students with autism spectrum disorders received services in a self-contained special education classroom, how might you coordinate with the special education teacher to involve his or her students in your classroom? How might you be able to involve students with autism spectrum disorders to help them learn affective, social, and life skills while working with general education students?

Student Study Site

Sharpen your skills with SAGE edge at **edge.sagepub.com/gargiulo7e**. SAGE edge for students provides a personalized approach to help you accomplish your coursework goals in an easy-to-use learning environment.

11 Individuals With Speech and Language Impairments

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Learning Objectives

After reading Chapter 11, you should be able to:

11.1 **Define** speech, language, and communication.
11.2 **Identify** the five components of language.
11.3 **List** different types of speech impairments and various forms of language disorders.
11.4 **Define** central auditory processing disorder.
11.5 **Identify** functional and organic causes of speech and language impairments.
11.6 **Explain** the differences between receptive and expressive language impairments.
11.7 **Describe** procedures used for assessing speech and language impairments.
11.8 **Explain** the function of augmentative and alternative communication devices.

A Parent's Story

Adam's life started with my pregnancy. It was a normal pregnancy with no complications. I had a caesarean section when Adam was a week overdue. He weighed 9.5 pounds, a very healthy baby. Adam reached all of his developmental milestones at normal times. He crawled at 6 months, walked at 10 months, and said his first word at 12 months. His speech and language continued to develop at a normal pace.

When it was time to eat solid foods, we had a problem. Adam had a strong gag reflex and did not seem to want to eat any foods that were not pureed. I came to the conclusion that he was not just picky. In addition, Adam drooled a great deal until he turned 3. I knew this was a lot longer than normal. I talked to the pediatrician about the eating and drooling. He said it was probably from teething and told me to keep introducing foods—eventually Adam would eat them.

When Adam was about 2 years old, I noticed that he could not pronounce *n, t, d, l,* and *s* correctly. I knew that *l* and *s* were not supposed to be mastered until the age of 4. I just thought he would master these by the time he was 4.

My husband, Rick, and I started to notice a great deal of frustration in Adam, who was now 3. What was the cause of it? We did not know and assumed it was age related. He did not seem to understand punishment. We would ask him why he was on his "thinking bench," and he could never answer. He would get more upset and answer something inappropriate. We would go to the pool during the summer. Adam would ask at least ten times, "Where are we going?" I would answer and could tell he just did not understand. I would try to rephrase, and sometimes this would help. Adam did not seem to understand simple directions, question words (*why, how*), sequencing, verb tense, and common language concepts. All of these things were very subtle, and other people did not notice.

He was not acquiring language concepts that children learn without formal teaching, and his pronunciation was not getting better.

In the fall, Adam started preschool. At this time, I was starting to put some of the pieces together and had some concerns. In October, I had a teacher conference and told the teacher of my concerns and asked her if she noticed anything. She did. I told her I felt like he would hear me but not understand what I said. She noticed that he did not understand yes and no questions, and when asked simple things that she knew he knew, he would say, "I don't know." He was still a very picky eater but would try a few new things and only eat a very small bite. The teacher recommended that we have him screened by the speech pathologist who was coming to the school in a few weeks.

Adam went to the speech and language screening, and we waited for the results. The speech pathologist sent home a brief report that gave his results and called us that night to discuss them. I remember it vividly, even that it was raining that night. She told me he had scored very low, in the 1 percent range for some of the tests, matter-of-factly telling me he needed to be evaluated fully and would possibly need to go to a special school. I was floored! I wish my husband had been on the phone with me to hear it for himself; I knew there were going to be many questions that I did not ask or have an answer for. I wondered how this could be so severe and how I could be that blind to the severity. I knew something was wrong, but I did not realize that it was this bad.

Adam was scheduled at a facility known in town for being on the cutting edge and recommended on the school list of places for referral. Rick and I both went to the evaluation and met with the speech pathologist afterward. She was very kind and supportive, giving us books to read and scheduling Adam's therapy. Adam was diagnosed with a mild to moderate language disorder, mild articulation difficulty, and low facial muscle tone. I felt very overwhelmed. What do we do now? How can I help? Does this mean he will have to struggle his whole life? How can I manage this? Rick was upset as well, but in a different way. He was defensive. He asked if Adam was stupid, and would he go to college? We were both dealing with fear and sadness that something was wrong with our child. After we talked more to each other and learned more about what was wrong, things settled down. The overall experience with the first speech pathologist was terrible, and the second time we felt very supported.

Adam is now 4 and has made great progress. He has matured socially, has improved his speech and language skills, and goes to occupational therapy as well. Both Rick and I incorporate therapy into everyday happenings. I feel like this is just a part of my everyday normal life and not a big problem. I primarily take Adam to therapy. Rick takes him sometimes as well. It has been important for both of us, as parents, to stay involved with his therapy.

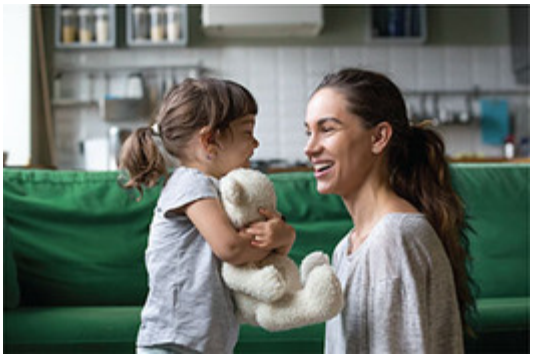
I still wonder about the future and how this will affect Adam. I have to put that aside and do the best that I can now, hoping for the best later. Adam likes to go to therapy and is much less frustrated. Because he was diagnosed and started therapy at such a young age, his future will be bright.

—Lori Smith

Although Adam's mother does not mention an individualized education program (IEP), Adam may have been one of the almost 324,000 preschoolers who received services under the speech or language impairment category of the Individuals with Disabilities Education Improvement Act (IDEA, 2004) during the 2016–2017 school year (U.S. Department of Education, 2018). Services for young children like Adam will be described later in this chapter.

The main focus of this chapter is on students who demonstrate communication difficulties that are not the result of or directly associated with another disability. The disability category under which these children are served is *speech or language impairment*. The communication difficulties of children who have a primary disability other than speech or language impairment are noted but not discussed as they are addressed in other chapters. First, we will introduce the discussion of speech and language delays and disorders with a review of the nature of speech, language, and communication.

By age 2, most children are producing short but intelligible sentences.



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The Nature of Speech, Language, and Communication

Of all the singular gifts bestowed on humans, the acquisition and use of language is undoubtedly the most miraculous. Most people give little thought to this remarkable achievement that begins in the womb. Even before they are out of diapers, most children have a vocabulary of fifty words or more, and by age 2, they are producing short but intelligible sentences. Three-year-olds are chatty and engaging as they begin to acquire the rules for tense and number, often overextending them to produce amusing statements like “I seed two mouses in the picture.” At this age, they are also discovering that words have different meanings depending on how you string them together. By kindergarten, most children have an impressive vocabulary, typically in excess of 2,000 words. Table 11.1 shows the amazing accomplishments of language learning. When attainment of any of the milestones shown in Table 11.1 is delayed or there is a disturbance in one or more of the components necessary for communication, the child is at risk for a language disorder.

It is important to begin by differentiating the concepts *speech*, *language*, and *communication* so that you can be as precise as possible when you talk about speech and language impairments with other professionals. You are familiar with the three terms, but you may have used them interchangeably, and they have very distinct meanings. **Speech** is the expression of language with sounds—essentially the oral modality for language. Compared to other ways of conveying ideas and intentions (for example, manual signing, writing, gesturing), speech is probably the most difficult. Humans are not the only species to produce sounds, but we are the only species with a vocal tract that permits production of the variety and complexity of sounds required for speech. Speech production depends on precise physiological and neuromuscular coordination of (1) respiration (the act of breathing), (2) phonation (production of sound by the larynx and vocal fold), and (3) articulation (use of the lips, tongue, teeth, and hard and soft palates to form speech sounds). Speech is considerably more than a motor behavior. It is

willed, planned, and programmed by the central nervous system—the brain, spinal cord, and peripheral nervous system.

speech The expression of language via sounds; the oral modality for language.

There is no single, widely accepted definition of **language** (Kuder, 2018). Many contemporary definitions of language parallel the one put forth by Bryant, Bryant, and Smith (2020): a "rule-based method of communication relying on the comprehension and use of [arbitrary] signs and symbols by which ideas are represented" (p. 135). The main purpose of language, according to experts (Hoff, 2014; Owens, 2020), is communication or self-expression. Essentially, language is a social tool (Owens, 2014, 2020). In many ways, language can be thought of as a code. It is a code in the sense that it is not a direct representation of the world but, rather, something with which to represent ideas and concepts about the world. It is a very complex and multidimensional system of symbols and the rules for appropriately using these symbols.

language A code used to communicate ideas via a conventional system of arbitrary signals.

What does it mean to *know* a language? It means that you are able to apply the basic units and the complex rules governing relationships among sounds, words, sentences, meaning, and use of the language. Language contains five major interrelated yet distinct elements (see Figure 11.1)—phonology, morphology, syntax, semantics, and pragmatics—that are present at both the receptive and expressive levels. These components, according to Owens (2020), represent the basic rule systems found in language. *Form* incorporates phonology, morphology, and syntax, or the elements that connect sounds or symbols with meaning. *Content* encompasses the meaning of words and sentences (semantics), while *use* addresses the social aspects of language, or pragmatics.

Form. The **phonology** of language includes the sounds that are characteristic of that language, the rules governing their distribution and sequencing, and the stress and intonation patterns that accompany sounds.

There are approximately forty-five different speech sounds in the English language, which we call phonemes.

phonology The sound system of a language, including the use of sounds to create meaningful syllables and words.

Table 11.1 Milestones for Acquiring Language

Table 11.1 Milestones for Acquiring Language

Age Range	Milestones in Language Development	
By Age 1	• Recognizes name • Says first words • Imitates familiar words (echolalia)	• Understands simple instructions • Recognizes words as symbols for objects: hears “ball”—points to ball
Between 1 and 2 Years of Age	• Understands “no” • Uses 10 to 20 words, including names • Combines two words such as “Daddy bye-bye” • Waves good-bye and plays pat-a-cake • Makes the “sounds” of familiar animals	• Gives a toy when asked • Uses words such as “more” to make wants known • Points to his or her toes, eyes, and nose • Brings object from another room when asked
Between 2 and 3	• Identifies body parts	• Tries to get adult attention: “Watch me”

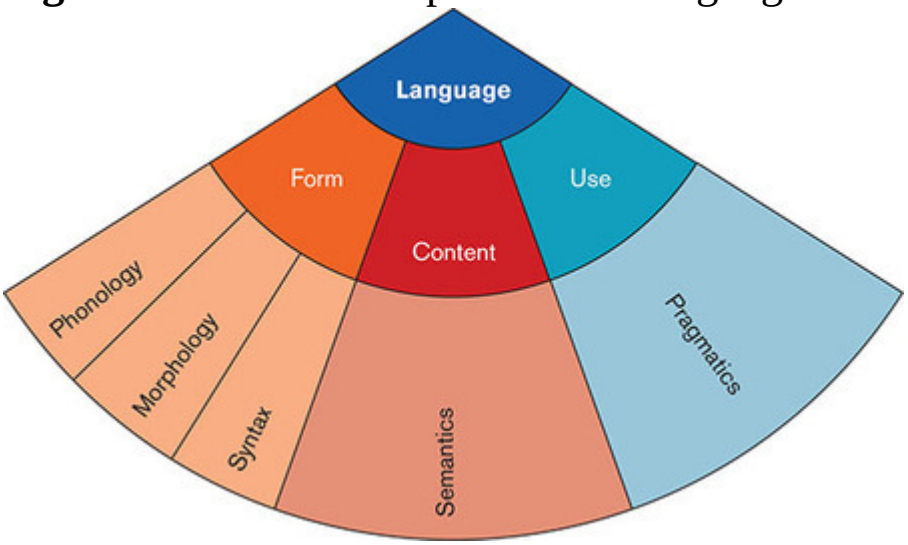
Age Range	Milestones in Language Development	
Years of Age	• Carries on "conversation" with self and dolls • Asks "What's that?" and "Where's my?" • Uses two-word negative phrases such as "No want" • Forms some plurals by adding "s": "book," "books" • Has a 450-word vocabulary • Gives first name, holds up fingers to tell age • Combines nouns and verbs: "Mommy go" • Understands simple time concepts: "last night," "tomorrow" • Refers to self as "me" rather than by name	• Likes to hear same story repeated • May say "no" when means "yes" • Talks to other children as well as adults • Solves problems by talking instead of hitting or crying • Answers "where" questions • Names common pictures and things • Uses short sentences like "Me want more" or "Me want cookie," matches 3–4 colors, knows big and little
Between 3 and 4 Years of Age	• Can tell a story • Has sentence length of 4–5 words • Has a vocabulary of nearly 1,000 words	• Begins to obey requests like "Put the block under the chair" • Knows his or her last name, name of street on

Age Range	Milestones in Language Development	
	• Names at least one color • Understands “yesterday,” “summer,” “lunchtime,” “tonight,” “little/big”	which he or she lives, and several nursery rhymes
Between 4 and 5 Years of Age	• Has sentence length of 4–5 words • Uses past tense correctly • Has a vocabulary of nearly 1,500 words • Points to colors red, blue, yellow, and green • Identifies triangles, circles, and squares	• Understands “in the morning,” “next,” “noontime” • Can speak of imaginary conditions such as “I hope” • Asks many questions, including “Who?” and “Why?”
Between 5 and 6 Years of Age	• Has a sentence length of 5–6 words • Has a vocabulary of around 2,000 words • Defines objects by their use (you eat with a fork) and can tell what objects are made of • Knows spatial relations like “on top,” “behind,” “far,” and “near”	• Knows common opposites like “big/little” • Understands “same” and “different” • Counts 10 objects • Asks questions for information • Distinguishes left and right hand

Age Range	Milestones in Language Development	
	• Knows his or her address • Identifies a penny, nickel, and dime	• Uses all types of sentences—for example, "Let's go to the store after we eat"

Note: Some variation in reaching developmental milestones is common.
Source: Adapted from *Speech and Language Development Chart, 3e* (p. NA), by P. Kipping, A. Gard, L. Gilman and J. Gorman, 2012, Austin, TX: PRO-ED. Copyright 2012 by PRO-ED, Inc. Adapted with permission. This permission is granted in both print and electronic form.

Figure 11.1 Basic Components of Language



Source: Adapted from R. Owens, *Language Development: An Introduction*, 10th ed. (Hoboken, NJ: Pearson Education, 2020), p. 18.

The **morphology** of a language includes the rules governing how words are formed from meaningful units called morphemes.

morphology Dictates how the smallest meaningful units of our language (morphemes) are combined to form words.

The **syntax** of language contains rules for how to string words together to form phrases and sentences, what sentences are acceptable, and how to transform sentences into other sentences. Knowledge of the syntax of a language allows a speaker to generate an infinite number of new sentences and recognize sentences that are not grammatically acceptable.

> **syntax** A series of linguistic rules that determine word order and combinations to form sentences and how such word order is used in the communication process.

Content. At the most basic level, **semantics** is the linguistic realization of what the speaker knows about the world—what people talk about. Semantics is concerned with relationships (1) between words and meanings, (2) between words, (3) between word meanings and sentence meanings, and (4) between linguistic meaning and nonlinguistic reality.

> **semantics** A psycholinguistic system that involves word meanings and word relationships and their use in communication.

Use. The major concern in **pragmatics** is the effectiveness of language in achieving desired functions in social situations. Attitudes, personal history, the setting, the topic of conversation, and the details of the preceding discourse are among the social and contextual factors that determine how speakers cast their sentences (and how listeners interpret them). Table 11.2 summarizes these five components of language. You may wish to refer back to this table when you are reading about specific disorders later in this chapter.

> **pragmatics** A sociolinguistic system involving the use of communication skills in social contexts.

Communication is the exchange of ideas, information, thoughts, and feelings. It does not necessarily involve speech. Examples of nonlinguistic communication behaviors are gestures, posture, eye contact, facial expression, and head and body movement. Nonlinguistic communication modes may be used as the only method of communication, or they may be used in conjunction with oral language. The communication process begins

when a person has an idea or intention and wants to share it. The idea or intention is formulated into a message and then expressed to another person or persons. The other person receives the message and reacts to or acknowledges it. In any communication, there is always a potential for message distortion because of the many possible message modalities and the many possible connotations and perceptions of the communication partners.

communication The sharing or exchange of ideas, information, thoughts, and feelings. Does not necessarily require speech or language.

The accompanying Insights feature illustrates one contemporary viewpoint on how young children acquire language (page 338).

Table 11.2 Components of Language

Table 11.2 Components of Language

Component	Definition	Receptive level	Expressive level
Phonology	The sounds characteristic of a language, the rules governing their distribution and sequencing, and the stress and intonation patterns that accompany sounds	Discrimination of speech sounds	Articulation of speech sounds
Morphology	The rules governing how words are formed	Understanding of the grammatical	Use of grammar in words

Component	Definition	Receptive level	Expressive level
	from the basic element of meaning	structure of words	
Syntax	Rules for how to string words together to form phrases and sentences—the relationships among the elements of a sentence	Understanding of phrases and sentences	Use of grammar in phrases and sentences
Semantics	The linguistic realization of what the speaker knows about the world—the meanings of words and sentences	Understanding of word meanings and word relationships	Use of word meanings and word relationships
Pragmatics	The social effectiveness of language in achieving desired functions—rules related to the use of language in social contexts	Understanding of social and contextual cues	Use of language to affect others

Source: Adapted from L. McCormick, "Introduction to Language Acquisition," in L. McCormick, D. Loeb, and R. Schiefelbusch (Eds.), *Supporting Children With Communication Difficulties in Inclusive Settings*, 2nd ed. (Boston, MA: Allyn & Bacon, 2003).

Insights
The Genetics of Speech

How Do We Learn Language?

It is safe to say that most 4-year-olds know nothing about subjects and verbs, direct and indirect objects, gerunds, participles, and infinitives. Yet they can talk your ear off in complete, complex sentences. So how do children learn to speak language so easily and with almost no adult instruction? Do they absorb it, or is it inborn knowledge?

According to University of Alabama at Birmingham linguist David Basilico, PhD, it's simply human nature. "Having and acquiring language is a biological property of being human, like having opposable thumbs," he says. Fifty years ago, however, behaviorists theorized that children learn everything they need to know from their environments. The problem with that conclusion is the "poverty of stimulus," Basilico explains. "There's just not enough information in what children hear in ordinary conversation to generate a full knowledge of English." Basilico says that most linguists now agree that humans have some genetic knowledge that makes learning language easy and natural, much like learning to walk. Babies aren't born with the complete English lexicon, of course, but they have an intuitive understanding of the rules and principles that underlie language, a concept known as "universal grammar." Basilico describes universal grammar as a menu of language possibilities. It provides a variety of options for the logical construction of a language—but not an infinite variety.

"Language picks and chooses from that menu," Basilico says. The constrained variation means that children don't have to listen to many sentences before they figure out the grammar for the entire language.

Clock Ticking on Talking

This remarkable ability has a time limit, however. “To acquire a language as a native, you have to be exposed to it very early,” Basilico explains. Linguists once considered puberty the time when the language-learning system would “sort of freeze up,” but now many believe it happens at a younger age, Basilico says. “Beyond this window, known as the critical period, you cannot learn a language as a native.” That is why adults often face difficulties in becoming fluent in a foreign language.

Universal grammar also implies that all of the world’s languages share an underlying system of rules and principles. “All human societies have language, and all languages are of equal complexity,” Basilico says. “The more you study languages, the more you realize they have much in common.” He adds that languages seem different due to their unique vocabulary choices and other superficial differences, “but on a deeper level, there are many similarities.”

Universal grammar also does not apply to written language, which doesn’t exist in all societies, Basilico notes.

Plug and Say

The theory that spoken language springs from a genetic source could have broad ramifications. Basilico and many other linguists believe that our innate language knowledge is "modularized"—that is, that the brain has a built-in "language module" in the same way that it has specialized modules for visual perception and other functions. But others argue that our language abilities are "a property of an all-purpose, general cognitive mechanism," he says.

That raises new questions about the relationship between language and thought; for example, does the language we speak shape the way we think, and vice versa? Basilico is skeptical, but he says both the modular and general hypotheses present intriguing examples of how genes can shape behavior. "If we can answer questions about language," he muses, "who knows what that could lead to?"

Source: Adapted from C. Burgess, "The Genetics of Speech," *UAB Magazine, 29*(1), Spring 2010, p. 10. Used by permission of the Board of Trustees of the University of Alabama System for the University of Alabama at Birmingham.

Defining Speech and Language Impairments

Speech and/or language impairments are problems in communication and related areas such as oral motor function. Delays and disorders may range from those so subtle that they have little or no impact on daily living and socialization to the inability to produce speech or to understand and use language. Fortunately, only a very small percentage of children are at the most extreme level of severity. However, because of the importance of language and communication skills in a child's life (or, for that matter, in anyone's life), even mild to moderate disorders or disturbances can have a profound effect on all aspects of life, sometimes isolating children from their peers and their educational environments.

Severe communication and language disabilities are most likely to occur secondary to pervasive cognitive, neurological, or physical disabilities. Table 11.3 provides an overview of language difficulties that are secondary to learning disabilities, autism spectrum disorders, intellectual disability, and traumatic brain injury. These communication difficulties are described in more depth in their respective chapters.

Table 11.3 Language Difficulties Secondary to Other Disabilities

Table 11.3 Language Difficulties Secondary to Other Disabilities

	Phonology	Morphology/Syntax
Learning Disabilities	• Delayed acquisition of sounds • Inferior perception and/or production of complex sounds • Inefficient use of phonological codes in	• Shorter and less elaborate sentences • Failure to encode all relevant information in sentences • Difficulties with negative and passive constructions, relative clauses, contractions, and adjectival forms • Confusion of articles

	Phonology	Morphology/Syntax
	short-term memory • Impaired sensitivity to sounds	(*a, an, the*) • Difficulty with verb tense, plurality, possession, and pronouns • Delayed acquisition of morphological rules • Difficulty with rules for auxiliaries, modals, prepositions, conjunctions, and other grammatical markers
Autism Spectrum Disorders	• Difficulties with expressive prosody (e.g., fluctuations in vocal intensity, monotonous pitch, tonal contrasts inconsistent with meanings)	• Confusions of pronominal forms (e.g., gender confusion [*he* for *she* or *it*], case substitution [*him* for *he*], first- and second-person singular forms [*you* for *I* or *me*]) • Less complex sentences than peers
Intellectual Disability	• Delayed development of phonological rules • Problems with speech production	• Production of shorter, less complex sentences with fewer subject elaborations or relative clauses • Delayed morpheme development • Delayed development of syntax
Traumatic Brain Injury	• Sound substitutions and omissions • Slurred speech	• Deficits in syntactic comprehension • Fragmented, irrelevant, and lengthy utterances • Mutism immediately after the injury,

	Phonology	Morphology/Syntax
	• Difficulties with speech prosody (pitch, loudness, rate, and rhythm)	followed by telegraphic production
	Semantics	**Pragmatics**
Learning Disabilities	• Word-finding and definitional problems • Restricted word meanings (too literal and concrete) • Difficulty with multiple word meanings • Excessive use of nonspecific terms and indefinite reference • Difficulty comprehending certain conjunctions (*but, or, if, then, either*)	• Difficulty with questions and requests for clarification • Difficulty initiating and maintaining conversation • Difficulty with relational terms (comparative, spatial, temporal)
Autism Spectrum Disorders	• Word-finding problems • Inappropriate answers to questions	• Limited range of communicative functions • Difficulty initiating and maintaining conversation • Few gestures • Failure to make eye contact prior to or during communicative interactions

	Phonology	Morphology/Syntax
		• Preference to follow rather than lead in a conversation • Failure to engage communication partners at a level that requires sharing
Intellectual Disability	• Use of more concrete word meanings • Slower rate of vocabulary acquisition	• Difficulty with speech–act development • Difficulty with referential communication • Difficulty initiating and maintaining a conversation • Difficulty repairing communication breakdowns
Traumatic Brain Injury	• Small, restricted vocabulary • Word-finding problems	• Difficulty with organization and expression of complex ideas • Socially inappropriate and off-topic comments • Less use of the naming function

Source: Adapted from L. McCormick and D. Loeb, "Characteristics of Students With Language and Communication Difficulties," in L. McCormick, D. Loeb, and R. Schiefelbusch (Eds.), *Supporting Children With Communication Difficulties in Inclusive Settings*, 2nd ed. (Boston, MA: Allyn & Bacon, 2003).

The IDEA 2004 (PL 108–446) label for students with communication difficulties is *speech or language impairment*. Children are eligible for services in this category if they have "a communication disorder, such as stuttering, impaired articulation, a language impairment, or a voice impairment, that adversely affects a child's educational performance" (34 C.F.R. § 300.8 [c] [11]). IDEA includes speech and language disorders under both special education and related services.

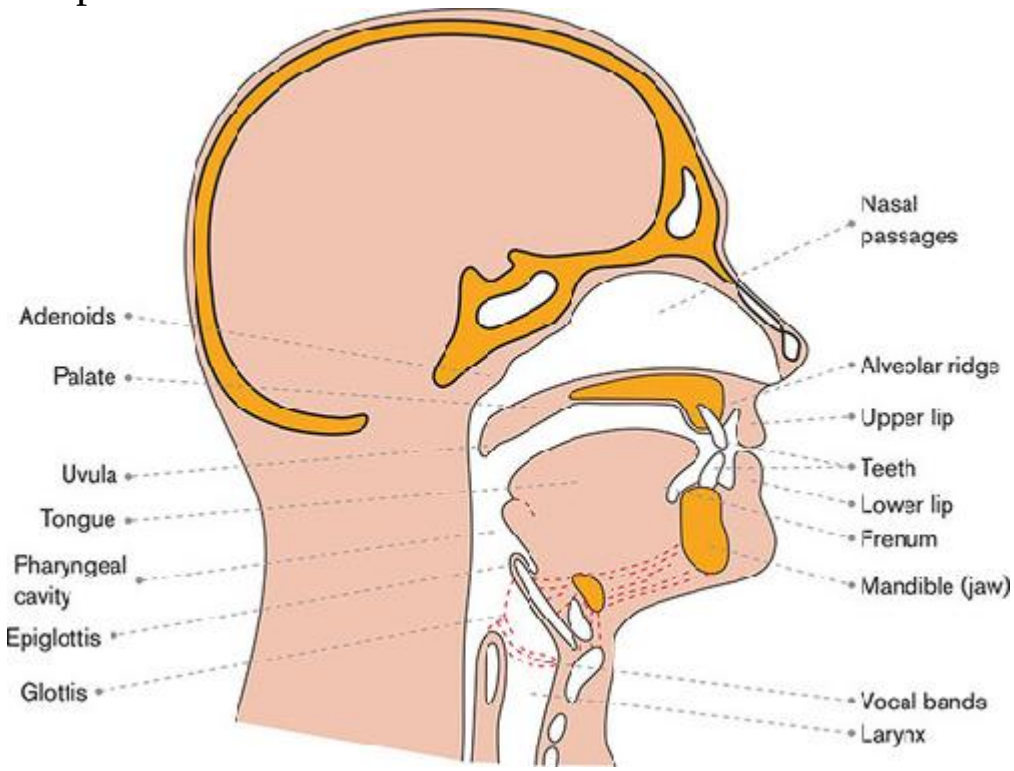
The American Speech-Language-Hearing Association (1993) defines a communication disorder as “an impairment in the ability to receive, send, process, and comprehend concepts or verbal, nonverbal, and graphic symbols systems. A communication disorder may be evident in the processes of hearing, language, and/or speech” (p. 40).

Classifying Speech and Language Impairments

Speech Disorders

Speech is the most common and the most complex mode for expression of language. It requires coordination of the neuromusculature of the breathing and voice-producing mechanisms, as well as integrity of the mouth or oral cavity. Figure 11.2 shows the organs used in speech production.

Figure 11.2 Organs Typically Used in the Production of Speech



Simply stated, a speech impairment is present when the individual's speech deviates to such a degree that it interferes with communication, attracts unfavorable attention, and adversely affects the listeners, the speaker, or both (Bernthal, Bankson, & Flipsen, 2017). There are three basic types of speech impairments: articulation disorders, fluency disorders, and voice disorders.

One of the most prevalent of all speech problems is **articulation disorders** (Owens & Farinella, 2019). Articulation disorders are errors in the production of speech sounds. They include **omissions** (*han* for *hand*), **substitutions** (*wabbit* for *rabbit*), **additions** (*footsball* for *football*), and **distortions** (*shlip* for *sip*). A lisp is a good example of a distortion. Common difficulties are often associated with the mispronunciation of /*ch*/, /*s*/, /*sh*/, and /*z*/ phonemes (Plante & Beeson, 2013).

articulation disorders Errors in the formation of individual sounds of speech.

omissions An articulation disorder that occurs when a sound is not pronounced in a word (e.g., *han* for *hand*).

substitutions An articulation disorder that occurs when one sound is substituted for another in the pronunciation of a word (e.g., *wabbit* for *rabbit*).

additions An articulation disorder wherein the speaker inserts extra sounds in spoken words (e.g., *footsball* for *football*).

distortions An articulation disorder in which a sound is said inaccurately, but resembles the intended sound (e.g., *shlip* for *sip*).

Articulation errors may be related to anatomical or physiological limitations in the skeletal, muscular, or neuromuscular support for speech production, or to other factors (for example, cerebral palsy, hearing loss). The etiology of most articulation problems, however, is unknown.

A child has a severe articulation disorder if pronunciation is so poor that his or her speech is unintelligible most of the time to family members, teachers, and peers. The focus of therapy for articulation disorders is acquisition of the correct speech sound(s), generalization of the sound(s) to different settings, and maintenance over time. For additional information on articulation disorders, see the accompanying Insights feature (page 342).

Fluency disorders are difficulties with the rhythm and timing of speech. A fluency disorder is basically "an interruption in the flow of speaking characterized by atypical rate, rhythm, and repetitions in sounds, syllables, words, and phrases. This may be accompanied by excessive tension, struggle behavior, and secondary mannerisms" (American Speech-Language-Hearing Association, 1993, p. 40). **Stuttering** is the most familiar fluency disorder. It is marked by rapid-fire repetitions of consonant or vowel sounds especially at the beginning of words, prolongations, hesitations, interjections, and complete verbal blocks. Examples of famous personalities affected by fluency disorders include Winston Churchill, King George VI of England, Tiger Woods, James Earl Jones, Bruce Willis, and Marilyn Monroe.

fluency disorders Disorders that involve the flow of speech, influencing the rate and smoothness of an individual's speech.

stuttering A type of fluency disorder in which word sounds are repeated.

Insights
Questions and Answers About Articulation Problems

Q. Will a child outgrow a functional articulation problem?
A. A child's overall speech pattern will usually become more understandable as he or she matures, but some children will need direct training to eliminate all articulation errors. The exact speech pattern of the individual child will determine the answer to this question.
Q. Do children learn all sounds at once?
A. Sounds are learned in an orderly sequence. Some sounds, such as *p*, *m*, and *b*, are learned as early as 3 years of age. Other sounds, such as *s*, *r*, and *l*, often are not completely mastered until the early school years.
Q. At what age should a child be producing all sounds correctly?
A. Children should make all the sounds of English by 8 years of age. Many children learn these sounds much earlier.
Q. How can I help a child pronounce words correctly?
A. By setting a good example. Don't interrupt or constantly correct the child. Don't let anyone tease or mock (including friends or relatives). Instead, present a good model. Use the misarticulated word correctly with emphasis. If the child says,

"That's a big wabbit," you say, "Yes, that is a big rabbit. A big white rabbit. Would you like to have a rabbit?"

Q. Can an adult with an articulation problem be helped?

A. Most articulation problems can be helped regardless of a person's age, but the longer the problem persists, the harder it is to change. Some problems, such as those relating to nerve impulses to the muscles of articulation (dysarthria), are particularly difficult and generally require a longer period of help than a functional disorder. Other conditions that may influence progress in a child or an adult include hearing ability, condition of the oral structures such as the teeth, frequency of help obtained, motivation, intelligence, and cooperation.

Q. Who can help?

A. Contact a speech–language pathologist if you are concerned about speech. A speech–language pathologist is a professional trained at the master's or doctoral level to evaluate and help the child or adult with an articulation problem as well as other speech and/or language disorders. The speech–language pathologist can advise whether professional help is indicated and how to arrange for assistance. The speech–language pathologist can also give you guidance or provide services to help prevent or eliminate a problem. Early help is especially important for more severe problems.

Q. Is it important to correct an articulation problem?

A. When you consider the possible impact an articulation problem may have on one's social, emotional, educational, and/or vocational status, the answer becomes obvious. Our speech is an important part of us. The quality of our lives is affected by the adequacy of our speech.

Source: Adapted from American Speech-Language-Hearing Association, *Answers and Questions About Articulation Problems* (Rockville, MD: n.d.).

A child is more likely to stutter when speaking before a group or to important individuals.

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Developmental stuttering typically begins between the ages of 2 and 6. Stuttering is situational in that it appears to be related to the setting or circumstances of speech. A child is more likely to stutter when talking with people he or she considers important (parents, teachers) and when called upon to speak before a group of people (for example, in front of the class). There appears to be no single cause of stuttering; for many children, the etiology of stuttering is unknown (Owens & Farinella, 2019; Ratner, 2017). Stuttering, however, is more common in males than in females. Investigators also note that a child has a greater likelihood of stuttering if he or she is a twin (Owens & Farinella, 2019). It is believed that over 3 million people in the U.S. stutter (The Stuttering Foundation, 2019).

No single therapy method is most effective for stuttering. As they mature, children can learn to manage their stuttering by deliberately prolonging certain sounds or by speaking slowly to get through a "block." Sometimes the problem disappears without treatment. In many instances, children who stutter seem to recover or outgrow the condition without formal intervention (Owens & Farinella, 2019; Ratner, 2017). See the accompanying Insights feature for frequently asked questions and answers about stuttering.

Individuals who stutter may also be clutterers. **Cluttering** is a related fluency disorder characterized by excessively fast and jerky speech. Like stuttering, cluttering interferes with the flow of a person's speech. It seems to result from disorganized speech planning, talking too fast or in spurts, or simply being unsure of what one wants to say. Speech may initially be clear; then it gradually increases in speed, shifts to an irregular rhythm, and becomes mumbled. Symptoms of cluttering may include reading and writing disorders, word repetitions, short attention span, and grammatical errors. A difference between stutterers and clutterers is that the stutterer is usually very aware of his or her fluency problem, whereas the clutterer may seem oblivious to the problem. Speech–language pathologists typically collaborate with special education teachers who have expertise in learning disabilities and behavior disorders when working with children who demonstrate cluttering.

cluttering A type of fluency disorder involving cognitive, linguistic, pragmatic, speech, and motor abilities.

Insights
Questions and Answers About Stuttering

Q. What is stuttering?
A. Stuttering is the condition in which the flow of speech is broken by abnormal stoppages (no sound), repetitions (st-st-stuttering), or prolongations (ssssstuttering) of sounds and syllables. There may also be unusual facial and body movements associated with the effort to speak.
Q. Aren't all people nonfluent to some extent?
A. Yes. Almost all children go through a stage of frequent nonfluency in early speech development. Adults may interject syllables ("uh") and occasionally repeat words, phrases, and sounds, but these nonfluencies are accepted as normal and usually are not a cause for concern.
Q. Does stammering *mean the same thing as* stuttering*?*
A. Most people use the terms interchangeably.
Q. What causes stuttering?
A. We still do not know what causes stuttering. It may have different causes in different people, or it may occur only when a combination of factors comes together. It is also possible that what causes stuttering is different from what makes it continue or get worse. Possible influences include incoordination of the speech muscles, rate of language development, the way parents and others talk to the child, and other forms of communication and life stress.
Q. Is stuttering caused by emotional or psychological problems?
A. Children who stutter are no more likely to have psychological problems than children who do not stutter. There is no evidence that emotional trauma causes stuttering.
Q. At what age is stuttering likely to appear?
A. Stuttering typically begins between 2 and 5 years of age, but occasionally begins in a school-age child and, more rarely, in an adult.
Q. If I think my child is beginning to stutter, should I wait or seek help?
A. You should seek a professional evaluation. Most children outgrow their nonfluency, but others will not. The problem of stuttering may be prevented from developing if treated early enough.
Q. Once stuttering has developed, can it be treated?
A. Yes. There are a variety of successful approaches for treating both children and adults.
Q. Can stuttering be "cured"?
A. Stuttering is not a disease. Rather than thinking in terms of an absolute "cure" for stuttering, the goal should be to progress toward improved fluency and success

in communicating.

Q. What should I do when I hear a child speaking nonfluently?

A. Children may be unaware that they are speaking nonfluently. Do not call attention to the nonfluent speech pattern or allow others to do so.

Do not say, "Stop and start over," "Think before you talk," "Talk slower," or "Cat got your tongue?" Listen patiently and carefully to what the child is saying, and do not focus on how it is being said.

Q. What should I do when I hear an adult stuttering?

A. Adults who stutter need the same patience and attention to their ideas as speakers who don't stutter. Don't look away, and don't hurry them or fill in words. This attempt to help can create anxiety and self-consciousness and make the problem worse.

Source: Adapted from American Speech-Language-Hearing Association, *Answers and Questions About Stuttering* (Rockville, MD: n.d.).

Voice disorders are problems with the quality or use of one's voice that result from disorders of the larynx. They are characterized by "the abnormal production and/or absences of vocal quality, pitch, loudness, resonance, and/or duration, which is inappropriate for an individual's age and/or sex" (American Speech-Language-Hearing Association, 1993, p. 40). Speech may be excessively hoarse, or lack appropriate inflection. Voice disorders may be caused by temporary conditions such as colds or allergies, chemically induced irritation, or vocally demanding activities, or more permanent abnormalities such as vocal nodules. Although voice disorders are more common in adults than in children, there are cases in which a child's voice is difficult to understand or unpleasant. The two types of voice disorders are phonation disorders and resonance disorders. The characteristics of a **phonation** disorder are breathiness, hoarseness, huskiness, and straining. In severe cases, the individual may not have any voice at all.

voice disorders May result from disorders of the larynx or disorders in phonation.

phonation Includes speech factors of pitch, loudness, and quality.

A **resonance** disorder may be characterized by **hypernasality** (too many sounds coming through the air passages of the nose) or **hyponasality** (too little resonance of the nasal passages). Hypernasality is often a result of

cleft palate. Too much air passes through the nasal cavities during production of sounds, giving the speaker a distinctive “twang.” Because the flow of air through the nostrils is impeded, the speaker with hyponasality sounds as if his nose is clamped or she has a cold.

resonance Sound quality of speech.

hypernasality A disorder of voice resonance, frequently observed as a result of cleft palate, in which too much air passes through the nasal cavities during the production of sounds, giving the speaker a distinctive nasal quality or “twang.”

hyponasality A disorder of voice resonance in which there is a restricted flow of air through the nostrils, often resulting in the speaker’s sounding as if his or her nose is being held.

Language Disorders

How well children understand and use language affects not only their ability to learn to read and write but also the perceptions of peers, family members, teachers, and society at large. When a child starts school, the perception of his or her language skills becomes particularly influential. When children's communication skills do not match others' expectations, children are likely to be perceived negatively and may consequently experience less academic and social success (Owens, 2014). Speech–language pathologists and teachers have two responsibilities: (1) to address children's specific language difficulties and (2) to minimize the social impact of particular speech–language characteristics by promoting understanding of and acceptance of language difficulties in the classroom.

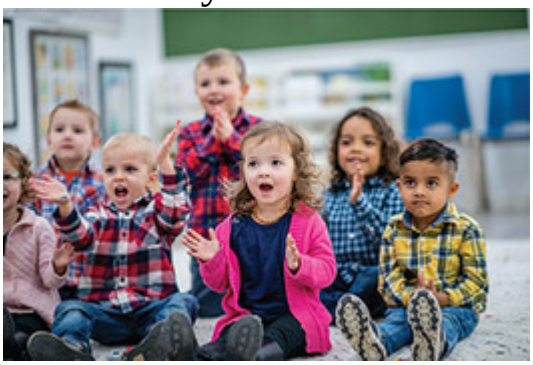
Recall the components of language as reviewed in Table 11.2 (page 338). Each of these five components of language (phonology, morphology, syntax, semantics, and pragmatics) has rules that must be mastered if the child is to have language competence. Language disorders occur when there is delay or difficulties with mastery in one or more of these areas.

A **phonological disorder** is defined as abnormal organization of the phonologic system or a significant deficit in speech production or perception. A developmental phonological disorder is the difficulty of organizing speech sounds into patterns. A child with a phonological disorder may be described as hard to understand or as not saying the sounds right—the child is likely to have difficulty decoding spoken language and may make substitutions for sounds. A child has a phonological disorder (as opposed to an articulation disorder) if he or she has the ability to produce a given sound and does so correctly in some instances but fails to produce the sound correctly at other times. Unlike articulation disorders, a phonological disorder reveals a pattern of responses and is therefore a rule-based phenomenon. Assessment for these children focuses on determining which sounds the child can produce, the contexts of correct and incorrect sound production, and the child's use or overuse of phonological processes. The

focus of therapy for phonological disorders is to help the child identify the error pattern(s) and gradually produce more linguistically appropriate sound patterns.

phonological disorder Abnormal organization of the phonological system resulting in a significant deficit in speech production or perception.

Children learn the rules of language by listening and imitating what they hear.



iStock.com/FatCamera

Apraxia of speech is a neurological phonologic disorder that results from impairment of the capacity to select, program, or execute the positioning of the speech muscles to produce speech sounds. The speech mechanisms are operating, but the child cannot get them to operate properly—when the child wants to speak, he or she has difficulty planning what to say and which motor movements to use. The weakened or slowed processes affect speech prosody, stress intonation, and rhythm. The speech of these children is characterized by groping attempts to articulate sounds correctly. There are frequent speech-sound substitutions and omissions with sound-sequencing difficulties and distortions and obvious struggle to retrieve desired sounds and patterns.

apraxia of speech A speech and language disorder composed of both a speech disorder, caused by oral–motor difficulty, and a language disorder, characterized by the resultant limitations of expression.

Language develops within the context of social relationships.

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Disorders involving morphology involve difficulties with morphological inflections. Morphological inflections (also called grammatical morphemes) are inflections on nouns, verbs, and adjectives that signal different kinds of meanings. For example, when you add the morphological inflection *-s* to dog, this signals plurality. Children with a **morphological disorder** have problems learning and using morphological rules. They use fewer grammatical morphemes and produce more grammatical errors than same-age peers.

morphological disorder Difficulty learning and using morphological rules of language.

Children with **syntactical deficits** have difficulty acquiring the rules that govern word order and other aspects of grammar such as subject–verb agreement. They have problems processing sentences, even relatively simple ones, and they typically produce shorter and less elaborate sentences with fewer cohesive conjunctions than their peers. Most evident is their inability to organize and express complex ideas.

syntactical deficit Difficulty acquiring the rules that control word order and other aspects of grammar.

Semantic disorders are characterized by poor vocabulary development, inappropriate use of word meanings, and/or inability to comprehend word meanings. Most evident are problems with word finding, the ability to generate a specific word that is evoked by a situation, stimulus, sentence, context, or conversation. Children with semantic difficulties also demonstrate restrictions in word meanings, difficulties with multiple word meanings, excessive use of nonspecific terms (for example, *thing* and *stuff*) and indefinite references (for example, *that* and *there*), and difficulties with comprehension of conjunctions and relational terms.

> **semantic disorder** Language difficulty associated with poor vocabulary development, inappropriate use of word meanings, and/or inability to comprehend word meanings.

Children with **pragmatic difficulties** have problems understanding and using language in different social contexts. They do not understand how to infer their listeners' needs, so they do not know what and how much information they need to provide in an interaction. Other weaknesses include lack of understanding of the rules for (1) when and how to make eye contact, (2) how close it is permissible to stand when talking to someone, (3) when to request clarification of information, (4) how to interpret direct and indirect requests, and (5) how to introduce topics.

> **pragmatic difficulties** Problems understanding and using language in different social contexts.

Table 11.4 presents indicators of a possible language impairment. These behaviors might suggest the need for an evaluation by a speech–language pathologist.

Central Auditory Processing Disorder

Defining **central auditory processing disorder (CAPD)** presents some difficulty because it has been the center of considerable controversy in the field of language disorders. Most authorities agree, however, that it is a problem in the processing of sound, not attributed to hearing loss or intellectual capacity. Simply stated, central auditory processing involves how we use and interpret auditory information. CAPD occurs when the ear and the brain do not work together as smoothly as they should. CAPD varies in degree from mild to severe. It may be the primary or secondary disorder, and involves aspects of listening skills necessary for language development. In children with CAPD, these deficits are not the result of a hearing loss; hearing is usually normal. These children demonstrate problems with auditory figure-ground (difficulty attending to a speaker when there is noise in the background), auditory memory, auditory discrimination (hearing the difference between similar sounds or words), auditory attention (maintaining listening focus), and auditory cohesion (for example, drawing inferences from conversations, understanding riddles, and comprehending verbal math problems).

central auditory processing disorder (CAPD) A problem in the processing of sound not attributed to hearing loss or intellectual capacity, involving cognitive and linguistic functions that directly affect receptive communication skills.

Table 11.4 Behaviors Indicative of a Possible Language Impairment in Children

Table 11.4 Behaviors Indicative of a Possible Language Impairment in Children

Child mispronounces sounds and words.
Child omits word endings, such as plural *-s* and past-tense *-ed*.

Child omits small unemphasized words, such as auxiliary verbs or prepositions.
Child uses an immature vocabulary; overuses empty words, such as *one* and *thing*; or seems to have difficulty recalling or finding the right word.
Child has difficulty comprehending new words and concepts.
Child's sentence structure seems immature or overreliant on forms, such as subject–verb–object. It's unoriginal, dull.
Child's question and/or negative sentence style is immature.
Child has difficulty with one of the following:

• Verb tensing • Pronouns • Word order • Articles • Irregular verbs	• Irregular plurals • Auxiliary verbs • Prepositions • Conjunctions

Child has difficulty relating sequential events.
Child has difficulty following directions.
Child's questions are often inaccurate or vague.
Child's questions are often poorly formed.

Child has difficulty answering questions.

Child's comments are often off-topic or inappropriate for the conversation.

There are long pauses between a remark and the child's reply or between successive remarks by the child. It's as if the child is searching for a response or is confused.

Child appears to be attending to communication but remembers little of what is said.

Child has difficulty using language socially for the following purposes:

- Request needs
- Greet
- Respond/reply
- Relate events
- Pretend/imagine
- Request information
- Share ideas, feelings
- Entertain
- Protest
- Gain attention
- Clarify
- Reason

Child has difficulty interpreting the following:
- Figurative language
- Emotions
- Humor
- Body language

• Gestures
Child does not alter production for different audiences and locations.
Child does not seem to consider the effect of language on the listener.
Child often has verbal misunderstandings with others.
Child has difficulty with reading and writing.
Child's language skills seem to be much lower than other areas, such as mechanical, artistic, or social skills.

Source: Adapted from R. Owens, *Language Disorders: A Functional Approach to Assessment and Intervention*, 6th ed. (Boston, MA: Pearson Education, 2014), p. 337.

Children with CAPD process auditory input in a way that is slow and inaccurate, and they work harder to interpret what they hear than their classmates do. These children are at risk for noticeable listening difficulties in many classroom situations. For example, spelling tests and note-taking are activities often adversely affected by CAPD. Behavioral characteristics of children exhibiting signs of CAPD may also mimic those of children with learning disabilities, attention deficit hyperactivity disorder, or dyslexia.

The causes of CAPD are many and varied and may include head trauma, lead poisoning, and chronic ear infections, as well as unknown etiologies. A neurophysiological basis for this disorder is likely.

Historical Perspectives

For many years, individuals with speech and language impairments and other disabilities were referred to as *handicapped*, the origin of the word referring to the image and practice of individuals with disabilities begging on streets with a cap in hand to catch donations. The work of Jean-Marc Gaspard Itard, referenced in Chapters 1 and 6, is considered classic early speech and language research. There was great fascination and curiosity regarding the "wild boy of Aveyron's" development of fundamental speech sounds and gradual use of these sounds in language for communication of his wants and needs. Early language deprivation, like that experienced by Victor, is one of the many etiologies identified for speech and language disorders.

Van Riper and Emerick (1996) have classified historic reactions toward individuals with disabilities into three categories:

- Rejection—being thrown from mountain peaks in ancient Sparta
- Objects of pity—frequently used within the context of religious practices throughout the ages
- A rewarding source of humor—Balbus Blaesius, an individual who stuttered and was caged and displayed on the Appian Way along with other individuals with disabilities

Although contemporary society has moved forward in the treatment of individuals with disabilities, these early reactions persist. Consider your own reactions to persons with speech and language impairments.

- Rejection. How many friends with significant speech and language disorders did you have in school? How many individuals with speech and language impairments were class leaders or had parts in school plays? How many of these individuals dated?
- Objects of pity. What happened when it was time to read aloud in class? How did you feel when these students were asked to present projects in class and had difficulty with the speech and language

aspects of their presentation? Were you uncomfortable? Did you feel sorry for them?

- A rewarding source of humor. Have you ever laughed at jokes or imitations of these individuals behind their backs? Have you laughed at the "humor" created by the speech and language disorders of cartoon characters such as Tweety Bird, Sylvester, Elmer Fudd, Porky Pig, and Donald Duck? Would it be funny to you if you had the same speech and language impairment as one of these historical cartoon characters?

Today, speech–language pathologists work in a wide variety of settings, including public and private schools.

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Educational programming and intervention for students with speech and language impairments have been available since the early twentieth century. In 1910, the Chicago public schools hired the first "speech correction teachers." In 1925, the American Academy of Speech Correction was established—the forerunner of today's premiere professional organization, the American Speech-Language-Hearing Association (ASHA). Until the 1950s, school-based speech–language pathologists had many titles, including *speech correctionists, speech specialists,* and *speech teachers*. Van Hattum (1969) credits a growing understanding of language development and skills in the identification and remediation of language disorders for the change to the term *speech therapist.* Students typically

worked with speech therapists in large groups, primarily at the elementary school level.

As the profession continued to expand, and professionals in the field of speech and language disorders practiced in a wider variety of settings, specialists generally adopted a medical/clinical model, leading to the presently used term, *speech–language pathologist.* Today, speech–language pathologists work in a wide variety of settings, including rehabilitation centers, nursing care facilities, health departments, and, of course, public and private schools. General and special education teachers work most frequently with school-based speech–language pathologists.

Prevalence of Speech and Language Impairments

Speech and language impairments are considered a high-incidence disability. According to the U.S. Department of Education (2018), slightly less than 20 percent of students receiving special education services are receiving services for speech and language impairments. This estimate does not include children who receive services for speech and language impairments that are secondary to other conditions such as deafness. During the 2016–2017 school year, approximately 1,016,000 individuals ages 6–21 were identified as having speech and language impairments (U.S. Department of Education, 2018).

Youngsters with speech and language disorders represent almost half of all preschoolers receiving a special education. Approximately 43 percent of all 3-, 4-, and 5-year-olds with a disability exhibit speech and language impairments. The U.S. Department of Education (2018) reports over 323,000 preschoolers in this category.

Etiology of Speech and Language Impairments

The etiologies, or causes, of speech and language impairments can be broadly subdivided in several different ways. One way is to classify them into **functional** versus **organic** etiologies. Functional etiologies have no obvious physiological foundation, and the cause of the impairment is often unknown. An articulation disorder, for example, without a physical basis would be classified as a functional etiology. Organic etiologies, such as cleft palate, can be linked to a physiological deficit.

> **functional** Etiologies of speech and language disorders that have no obvious physical basis (such as environmental stress).

> **organic** Etiologies of speech and language disorders that can be linked to a physiological deficit (such as cleft palate).

Additionally, impairments may be classified as congenital, developmental, or acquired. Congenital disorders are those existing at birth; developmental disorders emerge during the preschool years. Acquired disorders are usually the result of injury, disease, or environmental insult; they most frequently result in childhood **aphasia**, which is a loss or impairment of language functions. Causative factors for developmental disorders are largely unknown, but may involve brain dysfunction, or can be secondary to hearing loss or autism spectrum disorders. Such factors have important implications for prognosis and service delivery. Speech and language impairments can also be classified by age of onset, severity, and behavioral characteristics of the disorder (symptoms).

> **aphasia** Loss or impairment of language functions.

The etiologies of communicative disorders are frequently complex. Although the vast majority of children evaluated by speech–language pathologists in schools exhibit functional disorders (Haynes, Moran, & Pindzola, 2012), familiarity with organic factors is also important for

educators. Etiologies may include congenital malformations, prenatal injury, tumors, and problems with the nervous or muscular systems, the brain, or the speech mechanism itself. Exposure to teratogens, including X-rays, viruses, drugs, and environmental toxins, can also cause congenital disorders. During the first six to twelve weeks of embryonic life, many organs are being formed. Any agent capable of damaging one organ may affect various systems developing simultaneously. A prime example of such an agent is maternal rubella (German measles). When contracted during the first trimester of pregnancy, this teratogen is capable of causing multiple and concurrent congenital problems such as cardiac defects, cataracts, intellectual disability, microcephaly, short stature, hearing loss, and a variety of concurrent speech and language pathologies (Bell, 2007).

A cleft palate or cleft lip is one of the most common birth defects in infants.

Mechir/Alamy Stock Photo

Communication problems that result from disease or traumatic insult after birth are acquired disorders. Traumatic brain injury following a motor vehicle accident is an example of an acquired disorder that frequently has negative implications for speech and language abilities. Meningitis, a disease resulting in inflammation of brain tissue, is a relatively common pediatric disorder. Complications of meningitis can result in hearing loss and associated communication deficit. Speech and language problems resulting from such an illness would represent an acquired communication disorder.

Articulation, voice quality, and fluency can be influenced by abnormalities in respiration (airflow in and out of the lungs), phonation (sound produced by the larynx), and vocal resonance (vibration within the vocal tract). Such disorders vary in degree and can occur in isolation, in combination with each other, or in conjunction with other language pathologies. Normal neurophysiology, as well as skeletal and muscular support for respiration and phonation, is necessary for speech skills to develop properly. The clinical entities presenting structural hazards to articulation include lips, teeth, and limited tongue mobility as well as a **cleft lip** and/or **cleft palate**. A cleft lip or cleft palate is a congenital abnormality that occurs about once or twice in every 1,000 births, making it one of the most common birth defects in the United States (March of Dimes, 2019). Simply stated, a cleft lip/palate, which is recognized as an organic etiology, results from the failure of bone and palate tissue to correctly fuse during the early weeks of fetal development. Some infants are born with an opening in the roof of their mouth while others have a gap (cleft) in their upper lip. In some instances, babies have both. The severity of these conditions can greatly vary. Unfortunately, the etiology of these birth defects is not well understood (American Speech-Language-Hearing Association, 2019; March of Dimes, 2019). Hypernasal speech is fairly common in youngsters with a cleft palate. Surgery and/or the use of a prosthetic, however, can often correct or minimize the impact of these structural defects.

> **cleft lip/cleft palate** A congenital defect in which the upper lip is split or there is an opening in the roof of the mouth. Can often be surgically corrected. Hypernasality is common.

Hearing loss, intellectual disability, learning disabilities, and emotional disturbance are also commonly associated with communicative disorders and have implications for language as well as speech development.

Prevention of Speech and Language Impairments

It is difficult to assign differential responsibility to hereditary versus environmental factors (nature versus nurture) when language is disordered. Because linguistic skills are so closely linked to academic performance, determinants of language abilities are of interest to all educators.

Any risk factor or disability that affects a child's cognitive, motor, and/or social development is also very likely to affect that child's language development; yet attempts to determine specific etiology are often not very productive. From the standpoint of prevention, however, it is useful to keep in mind the factors necessary for normal language acquisition. Four sets of variables seem to have a profound influence on language learning: (1) biological preparation, (2) successful nurturance, (3) sensorimotor experiences, and (4) linguistic experiences (McCormick, 2003a). The strongest evidence for the contention that language is a biologically determined capability comes from the fact that all cultures have language and all humans learn to talk (unless limited by sensory, neuromuscular, or cognitive impairment). As discussed earlier in this chapter, infants arrive in this world prepared to understand and use language. Their biological preparation includes neuromotor capabilities, an impressive supply of attentional and perceptual abilities, and a strong desire to interact with others. Successful nurturance requires a nurturing environment in which responsive adults carefully mediate the introduction of new stimuli. The dynamic regulation of stimuli is evident in caregiving rituals such as feeding and diapering, joint action routines (for example, peek-a-boo), and a variety of other daily interactions. Adults use these exchanges to help infants learn the rules of turn taking, the meaning of particular gestures, imitation of sounds and gestures, and mutuality. Sensorimotor experiences are the means through which infants construct their understanding of the world by acting on it, both physically and mentally (Piaget, 1952). These experiences make it possible for infants to progress, in less than two short years, from being totally reflexive and largely immobile to becoming planful thinkers who can move about independently and communicate their

intentions. Finally, linguistic experiences (called child-directed speech) undoubtedly play an important role in language learning. Caregivers facilitate language learning by continuously adjusting the phonologic, semantic, syntactic, and pragmatic characteristics of their speech when they address infants. If any one or some combination of these factors is lacking or deficient, the child is at risk for language delay and/or disorders.

Language is possibly the most complex human behavior. Yet despite significant differences in child-rearing practices across cultures, almost all normal children develop native language at about the same chronological age. Most children appear to learn their language system in a matter of a few years without formal instruction. However, development of mature language skills requires an environment that provides substantial communicative interaction. In virtually every known culture, language develops within the context of social relationships—primarily the parent or caretaker relationship. Research suggests that variability in such relationships may account for at least some differences in linguistic skills.

Months of rich social and communicative exchange precede actual production or expression of language by the child. During infancy and early childhood, caregivers respond to nonlinguistic communications, decode linguistic attempts, and provide adequate models for and shaping of the expressions of language. When these interactions fail to occur, the child is at risk for **developmental language delay**. Delayed language means that a child is slow to develop adequate vocabulary and grammar, or language age does not correspond to the child's chronological age. Refer back to Table 11.1 (page 336), which lists some normal developmental milestones in language. Awareness of basic developmental guidelines is of the utmost importance for professionals involved in the education of the very young child, as communication disorders linked to developmental delays are less amenable to modification with increasing age.

developmental language delay Slowness in the development of adequate vocabulary and grammar, or when a child's language age does not correspond to the child's chronological age.

Characteristics of Individuals With Speech and Language Impairments

Language, as well as its associated pathologies, can be broadly categorized into two basic types: **receptive language**, or the ability to understand what is meant by spoken communication, and **expressive language**, which involves production of language that is understood by and meaningful to others (Friend & Bursuck, 2019). Children with language disorders have difficulty expressing thoughts or understanding what is said. Expressive language skills and possible areas of deficit include grammar, syntax, fluency, vocabulary, and repetition. Receptive language deficits address response, abstraction, retention, and recall issues. A student who is unable to follow directions efficiently in the classroom may have a receptive language disorder; the child who cannot communicate clearly because of poor grammar, insufficient vocabulary, or production problems such as an articulation disorder suffers from an expressive language disorder.

receptive language The ability to understand what is meant by spoken communication.

expressive language The formation and production of language, verbal and nonverbal, that is understood by and meaningful to others.

Children with language impairments frequently struggle in the classroom as well as at home and in other community settings. (See the accompanying First Person feature.) Some of the difficulties (Vaughn, Bos, & Schumm, 2018) you may observe in children with expressive language disorders include

- difficulty formulating questions,
- excessive repetition of information,
- incorrect grammar or syntax, and
- limited vocabulary.

Youngsters with receptive language problems typically have difficulty

- comprehending compound and complex sentences,
- following oral directions,
- responding to questions appropriately, and
- understanding humor or figurative language.

How do young children learn language? The answer to this question still eludes researchers, and conflicting theories abound. Beginning before age 2 and largely before age 4, most children acquire intelligible speech and possess a basis for development of adult grammar (McCormick, 2003a). However, there is substantial variability in the normal development of speech and language in children. For example, the age of mastery of various speech sounds may vary by as much as three years. By age 8, however, virtually all speech sounds in the child's native language should be correctly produced (see Figure 11.3).

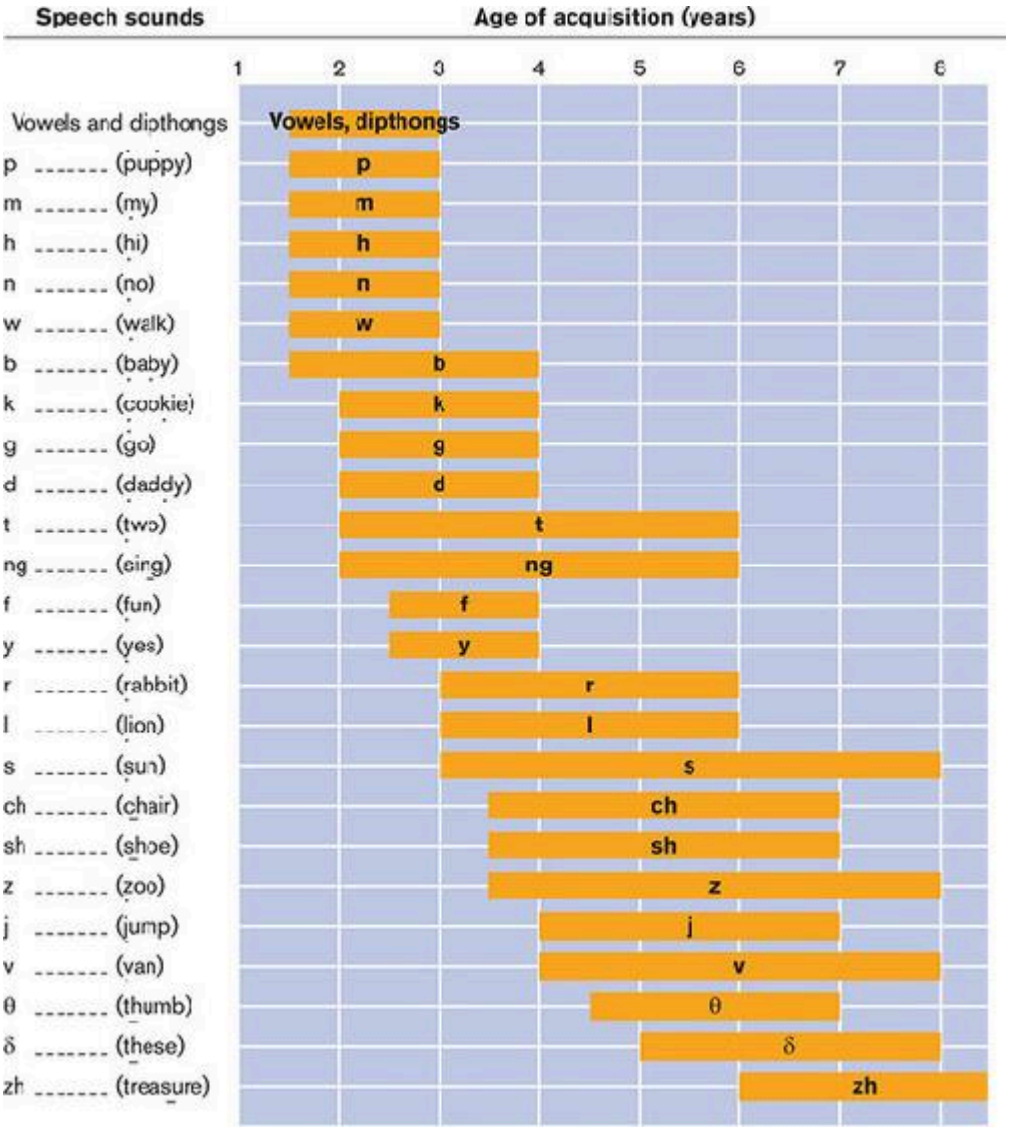
Assessing Speech and Language Impairments

Assessment is an important step in the habilitation and management of communication disorders. The purpose of assessing the child in whom language or speech problems is suspected should be to gain insight into his or her functional abilities, limitations, and perceived needs. A wide range of assessment tools, both formal and informal, is available to assess language and speech. Some of these tools are also available in Spanish. Most of these evaluation procedures are conducted by a speech–language pathologist within the educational system or in private practice.

One of the most important tools in the assessment process for speech and language impairments is the case history. Amassing identifying information such as gender, age, natural or adoptive parents, and pertinent family status information is helpful. The initial family interview is of paramount importance to the assessment and rehabilitative effort, and sets the tone for future interactions between professionals and families. Asking parents of young children questions such as “What issues have prompted you to have your child evaluated?” or “What would be most helpful for me to know about your child?” can aid in determining parental concerns. **Family-directed assessment** focuses on information that families choose to provide regarding needs, concerns, resources, and priorities. This type of assessment is useful for infants, toddlers, and preschool-age youngsters. In this procedure, families participate in the assessment process by identifying strengths and needs and are empowered in the process of determining which support services are most necessary (Gargiulo & Kilgo, 2020).

family-directed assessment A form of assessment, useful for infants, toddlers, and preschool-age youngsters, that focuses on information that families choose to provide regarding needs, concerns, resources, and priorities.

Figure 11.3 Age of Acquisition of Speech Sounds



Note: Beginning of bar represents the approximate age at which most children begin to acquire each sound. End of bar represents age at which most children have mastered each sound.

Source: E. Sanders, “When Are Speech Sounds Learned?” *Journal of Speech and Hearing Disorders*, *37*(1), 1972, p. 62.

D. Sindrey, *Listening Games for Littles II* (London, Ontario: Wordplay Publications, 2002).

First Person: Emily A Journey Toward Success

The day my child became special started out like any ordinary day. She was a toddler and attended a very prestigious preschool. It was the biannual parent–teacher meeting, which had been the norm since she was an infant. My husband and I were excited to see her drawings and scribbling that marked the beginning stages of writing. The normal pleasantries were exchanged, and then we began looking at Emily's work. At some point during this exchange, I noticed that the teachers were somewhat hesitant or nervous. The topic was color identification. The teachers stated that Emily wasn't retaining color identification. She did not associate the word *green* with the color green.

The suggestion was made that we needed to have her tested. The teachers stated that probably nothing was wrong, but if there were some issues, then the earlier that intervention began, the better it would be for Emily. Since Emily was almost 3, the school system provided testing free of charge. To be honest, I handled this situation like any grown-up mature adult—I cried and cried.

I began flashing back to some early warning signs. Emily walked and talked later than most other children, and she would get confused when I would say, "Go get your toy in the living room." She also didn't understand the concepts of up/down, above/below, behind/in front of, and so forth, and with that our journey began.

The test results confirmed a learning disability. Emily was also eligible for speech–language therapy. Although the school system provided free speech–language therapy, the location to my employment wasn't convenient. Therefore, the decision was made to hire a private speech–language therapist to come to her preschool two days per week. Therapy was fairly smooth at first as I waited for this therapist to "cure" my child. She would share funny stories with me but always seemed to focus on Emily's disability rather than her abilities. She also failed to fully communicate with Emily's preschool teachers.

This therapist soon relocated to another state, and we started working with a new speech–language pathologist. Emily and I immediately clicked with her. She laid out a plan of action and regularly met with Emily's teachers and me. She emailed me after each session and would tell me the great things Emily achieved during the session. She loved Emily, and most important, she saw her abilities.

As I am writing this, it has occurred to me that I am writing all about what I went through. I haven't appropriately introduced you to the special girl that I am writing about. Her name is Emily Grace, and I am proud and honored that God chose me to be the mother of this special girl. She is 10 years old and doesn't meet a stranger. She is kind and has always been the caretaker of all her friends. When she sees a friend, she almost knocks her down with big hugs. Seeing Emily, you would never know she has a language impairment. She doesn't look a certain way; in fact, she is a beauty! Now back to the story.

Emily began kindergarten and a totally new experience. This time, however, she had an instructional support teacher, a general education teacher, and a speech–language pathologist. I became increasingly familiar with the individualized education program process. Emily loved school.

Emily entered the first grade and continued to be happy. She is very social but at the same time well behaved. She would raise her hand and answer any question her teacher asked her. The problem was that Emily would give an answer that didn't pertain to the question or the subject being discussed. She would give an answer that was related to the last thought in her head. Her teacher suggested that maybe Emily had attention deficit hyperactivity disorder (ADHD). So off we went to her pediatrician and another battery of tests with a neuropsychologist. The testing indicated that Emily did indeed have ADHD. We placed her on medication but nothing changed, and we switched medication again and again. Still nothing changed. Emily, however, changed—this fun, social, laughing girl was quiet. My husband and I made the decision, against the wishes of her teacher and neuropsychologist, to remove Emily from medication.

Teachers who are not familiar with Emily's disability think she is not listening. Directions are hard for her. Something as simple as "Get your books out and write down your homework assignments" is a hard concept for Emily to follow. The teacher doesn't know that for Emily she needs to say, "Emily, open the book," and once the book is opened, she has to point to the homework assignment and say, "Write this down in your book."

Reading comprehension is extremely difficult for Emily. She reads at a level higher than her comprehension. She can read a paragraph, but when asked what she just read, she would repeat some words from the last sentence of that paragraph.

Second grade began, and her teacher wasn't one who was "warm and fuzzy." My sense was that she felt inconvenienced by having Emily included in her class. During one of our many conferences, she remarked that Emily was unorganized; she wasn't able to come in, put her backpack down, and get her books out. She held the entire class up. The teacher told me that Emily's peers were pulling away from her, and she described a child with whom I was not familiar. She also told me that Emily would embarrass herself by responding to questions with answers that didn't pertain to the subject being discussed. I wanted to scream, "Don't you think I know this?" Fortunately, for me, the saving grace that year was Emily's instructional support teacher and her speech–language pathologist. Her instructional support teacher made laminated picture cues for Emily that visually showed her the correct sequence to follow upon arriving in class. I am proud to say that Emily got the hang of it. She learned! You see, Emily can learn. She just learns a bit slower and differently than most children, but nonetheless, she learns.

Blessings occurred many times in our lives, and another arrived the day Emily entered third grade. She had a new teacher. This teacher was new to the school system, and she was young. "Oh boy, I bet you she doesn't have a clue about language delay" was my initial reaction. In addition, Emily was assigned a new instructional support teacher. I thought, "Here we go again." I didn't want to have the typical three-month recoupment period that both Emily and I faced each year, so I decided to tell them how Emily learns. This third-grade teacher got it. She read my notes and focused from the beginning on

Emily's abilities. She introduced me to a new concept called frontloading. She would take Emily aside and preteach her a subject while classmates were reading. When the teacher went over the lesson with the remainder of the class, Emily would be hearing it the second time. It helped to reinforce the subject. By far, this teacher has been the best teacher to date for Emily.

Her new instructional support teacher was also wonderful. Because she was familiar with receptive/expressive language delays, she taught concepts to Emily visually. She actually knew Emily and understood her struggles. She worked closely with the classroom teacher and gave her ideas to help Emily respond properly to questions. It was also done in a way that didn't embarrass Emily in front of her peers.

This instructional support teacher also challenged the school administrators about the Honors Day program. She asked, "Why can't children in instructional support be included on the AB honor roll? After all, they learn and do well at their level. Are only A students successful in life?"

Emily entered fourth grade; fortunately, her support team remained intact. Still the old, familiar three-month lag raised its ugly head. Her grades typically slipped during this time frame as her teachers tried to understand and respond appropriately to her disability. Emails and constant communication with her teacher and the familiarity of her instructional support teacher helped tremendously. Emily worked extremely hard, and her efforts paid off. She received the Principal's Leadership Award during the Honor Ceremony that year.

Emily is now in fifth grade. To be honest, this has been an extremely difficult year. Two conferences with her teacher were required, and things were still difficult. The issue is communication. The teacher assured the parents during orientation that all homework would be included on his website, and it was—partially. For instance, he would tell the class, "Do page 2 in your math book." Emily wouldn't bring the book home, or each unit in the book had a page 2. So which unit? While most kids could tell you which unit, Emily can't. Another example: She would often bring home books but didn't bother to write the assignments in her planner. The website would have homework assignments for the class that didn't pertain to Emily. During one of our conferences, the teacher remarked, "I told her several times to make sure that she had all her books to take home." (He didn't realize that all Emily heard was books.) Her instructional support teacher would tactfully remind him that this is a product of her disability.

A thirty-minute reading assignment is brutal for Emily. It takes Emily well over an hour to complete the assignment. She slowly sounds out the words, and then can't tell you one thing she just read. Once again, her instructional support teacher stepped in. Emily was given a notebook (to keep at home) that had short stories with questions to answer. Her teacher taught her to number the paragraphs and then break them down. Last night, we completed four stories in thirty minutes! Success!

It is helpful that the instructional support teacher emails me each Monday with the teacher's weekly plan. She answers my emails daily. She understands my frustrations. I lean heavily on her during these tough times. I have left her phone messages as I cried

with frustration on trying to understand what the classroom teacher was expecting of my child.

My worries are now with the transition to the middle school. In life, the smart kids, the popular kids, and the enrichment kids are favored. Some teachers are inconvenienced that they have to teach another way to my child, and I get that. It has to be hard and time-consuming. But isn't that what the calling of a teacher is? To teach? Learning to teach students doesn't mean teaching only smart students. Emily will have to fight to make her way, to stand out in life. It is regrettable that it takes some teachers four months to get it. Will you be the type of teacher who extends his or her hand and pulls Emily to the top? Will you get it? I hope so. Emily and others like her need you.

—Anonymous

Effective assessment should be holistic, including both formal and informal measures (Owens, 2014). Information relative to the child's hearing, motor skills, oral and respiratory mechanisms, general physical condition, educational records, and social and developmental histories must be amassed and reviewed. In addition to physical, educational, and communicative ability, consideration of the child's psychological and social status, as well as family dynamics, will affect decisions regarding effective intervention strategies. IDEA 2004 mandates that information provided by parents be included in the assessment process. While testing is important, asking questions, gathering information, observing, and directly interacting with the child also yield critical insights. This type of informal assessment requires input from the child's family members, caregivers, and significant others. Open-ended questions such as "What concerns prompted you to seek evaluation of your child?" allow professionals to explore various social, cultural, and family issues that need to be considered in designing meaningful and individualized approaches to remediation. Awareness of these issues and their relationship to the communication difficulties provides a framework for effective treatment.

Observing the child's general appearance may also identify significant but subtle physical anomalies consistent with some congenital abnormalities that impair the communication process. Such markers might include low-set ears and peculiarities of the head, jaw, teeth, and tongue and should also be noted during the initial interview.

A speech assessment evaluates articulation, voice, and fluency abilities of the child. The articulation test is a formal evaluation procedure designed to identify sounds or phonemes that are not produced correctly in light of the student's age. The Goldman-Fristoe Test of Articulation 3 (Goldman & Fristoe, 2015) is a commonly used measure of articulation. When determining accuracy of production, test items evaluate various consonants in initial, middle, and final positions (for the sound /*t*/, for example, position varies in the words *two*, *platter*, and *cat*).

The professional who seeks to assess language pathology faces a formidable task, however, in determining what constitutes "normalcy" for language. Evaluating children in our culturally diverse society is particularly difficult. Care must be taken that normative data account for individual and cultural differences that affect language acquisition. How can we effectively distinguish speech and language pathology in the midst of cultural diversity? Educational professionals must observe the child's speech production and compare its quality and content to that of the child's own peers. Informal measures, such as conversational sampling of speech, often provide more useful information than do formal assessment tools. Educators are encouraged to use such informal evaluation methods to enhance the evaluation process (Owens, 2014). Obtaining a **language sample** from a very young child is sometimes impossible because the child does not have speech that is sufficiently developed to provide such a sample. In this case, **prelinguistic** communicative behaviors can be used; these are frequently obtained by parent interview as well as by direct observation. A variety of scales and checklists have been designed for this purpose. The BRIGANCE® Inventory of Early Development III (Brigance, 2013) is an excellent example of a criterion-referenced assessment that can be used in this way.

language sample An observational evaluation that includes observing the speech and language characteristics of a child actively communicating.

prelinguistic Communicative behaviors used by children before the formation of formal speech and language characteristics.

Strategies for Effective Teaching and Learning
Teaching Language Skills

The teacher's use of effective teaching strategies will help students with language difficulties gain the concepts and content that they need for success in content-area classes. Key strategies that can be used in teaching language concepts or patterns include the following:

- Gear the activities to the student's interests and cognitive level.
- Get the student's attention before engaging in communication activities.
- Bombard the student with the concept or skill frequently throughout the day in a functional manner.
- When speaking, place stress on the target concept or language pattern.
- Pause between phrases or sentences so that the student has time to process the new concept or language pattern.
- Decrease the rate of presentation when first introducing the concept or language pattern.
- When introducing a new concept or language pattern, use familiar vocabulary that can be readily visualized.
- If possible, present the new concept or language pattern by using more than one input mode (auditory, visual, kinesthetic). Gestures and facial expressions that are paired with a specific language pattern often assist students in understanding the form. For example, giving a look of puzzlement or wonder when asking a question can serve as a cue to the students.
- Pair written symbols with oral language. For instance, demonstrating morphological endings such as *-s* (plurals) and *-ed* (past tense) can be done in writing. The students can then be cued to listen for what they see.

Source: S. Vaughn, C. Bos, and J. Schumm, *Teaching Students Who Are Exceptional, Diverse, and at Risk*, 8th ed. (New York, NY: Pearson Education, 2018), p. 2227.

Any comprehensive assessment of linguistic ability will require a variety of assessment measures that consider developmental level, maturity, gender, ethnicity, and cultural background (Cohen & Spenciner, 2015). On the basis of such findings, objectives can be designed for the child and his or her family. Results of assessment may provide a baseline for pre- and postintervention comparisons, as well as indicating a need for referral to various other professional disciplines. Well-designed and -implemented evaluation techniques help determine whether linguistic competence is outside the range of normalcy, as well as clarify what communication

problems are amenable to change, how much improvement can be expected, the need for a range of professional services, and variables that will influence treatment outcomes.

Educational Considerations

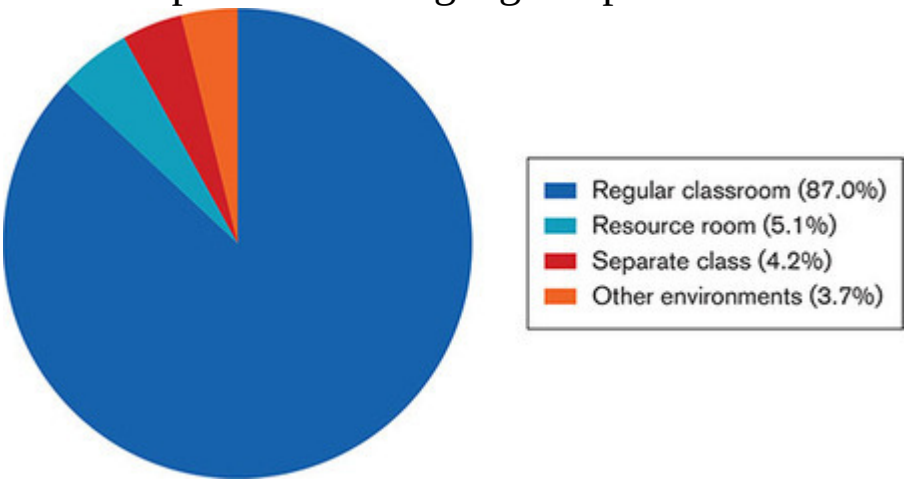
Educational planning for children with speech and language impairments involves many factors. Elements that need to be considered in the classroom setting include seating arrangements, reducing distractions in the physical environment, and instructional techniques that will help students with speech and language impairments, such as the following:

- Allowing sufficient time for the student to respond
- Being patient
- Modeling correct speech
- Prohibiting ridicule of speech difficulties/errors
- Repeating important phrases
- Slowly giving directions, repeating if necessary
- Using gestures to clarify information
- Using graphic organizers and visual aids
- Using short sentences

Where Are Students With Speech and Language Impairments Served?

The overwhelming majority of children with speech and language impairments are served in the regular or general education classroom. Figure 11.4 graphically represents the educational placements typically used with pupils who have a speech or language impairment.

Figure 11.4 Educational Placement of School-Age Students With Speech and Language Impairments



Note: Figure represents percentage of enrollment of students ages 6–21 with speech and language impairments during the 2016–2017 school year. Other environments represent placement in a separate school, residential facility, homebound/hospital environment, correctional facilities, or parentally placed in private schools.

Information based on data from forty-nine states, the District of Columbia, Puerto Rico, Bureau of Indian Education schools, and outlying areas. Data for Wisconsin not included.

Source: U.S. Department of Education. (2018). *Fortieth annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2018.* Washington, DC: U.S. Government Printing Office.

Making Inclusion Work
Individuals With Speech and Language Impairments

I realized I wanted to pursue a career as a speech–language pathologist when I was a high school senior working with a young neighbor. I earned an undergraduate degree in speech–language pathology as well as a master's degree in elementary education from the University of Montevallo. I am currently pursuing a second master's degree in special education. I have worked in public schools for many years teaching speech to preschool children and elementary-grade students. The children I have worked with had articulation disorders, delayed language development, and social skill deficits in addition to speech dysfluencies that hindered proper communication. I have led social groups to help pupils learn how to appropriately communicate and interact with their peers. I have been greatly blessed to be a part of the lives of these children and their families, and I will always be grateful that I have been able to walk with them on this journey.

I find that the most important thing I can do to help my students is to develop a good rapport with their parents. I invite parents to become a part of my class and to observe therapy with their children. I send frequent progress reports home and respond quickly to any notes, phone calls, or emails. As much as I am dedicated to being an effective speech–language pathologist, I deeply care about the daily stresses and struggles these parents encounter in raising their child. It is not an easy task, but every educator needs to remember that parents are the experts, and they need to be respected as such. In most instances, they have invested their entire lives in helping their son or daughter, and they often know what does and does not work with their child. After all, they were their child's first teacher.

Strategies for Inclusion and Collaboration

Collaboration begins with the referral process. While the special educator is often the team member who writes the individualized education program (IEP), information and observations from other teachers, therapists, and paraprofessionals are gathered to construct an appropriate IEP.

Working and planning collaboratively with all of the teachers and professionals who are a part of the student's day help the child to work on speech and language goals throughout the day in his or her natural settings. I frequently meet with my students' teachers to share IEP goals and the progress each child has made. When teachers are aware of the success a student has had in learning a particular speech sound or language skill, they are able to follow up and help the student in their classroom as well.

The general education teacher is not the only person who works with the student who has a speech and language impairment. I inform all of the individuals who work with my students of ways that they can help support the child. Physical education teachers, lunchroom workers, the teacher in the computer lab, the media specialist, the guidance counselor, the music teacher, and any other therapists who work with my pupils are all aware of the strategies and techniques that they can use to support and encourage my students. In this way, the children are able to practice the skills that are needed in more than one environment. Furthermore, I believe it helps others who work with these children to be more compassionate and understanding.

Speech–language pathologists often remove pupils from their classroom due to the students' need for individualized and specialized therapy; however, a great deal can be accomplished in the general education classroom. I often teach language skills as a whole-class activity, and all the children benefit from the experience. In one instance, I had a child working on understanding figurative language. I went to his classroom and taught the entire class this skill while planning a lesson around the book *Amelia Bedelia*. It was a lot of fun for everyone.

I often start with students learning and practicing social skills. I then share with other teachers the skills under development, and together we find ways for the children to practice the skills throughout their school day. One of my students, who had been diagnosed with Asperger syndrome, was having a difficult time at lunch interacting with his peers and choosing appropriate topics to discuss, and was frequently bothering his teacher with unnecessary comments and requests. His classroom teacher, his special education teacher, his paraprofessional, and I met to help him with this problem. I taught him appropriate topics to ask about and discuss with his friends at lunch, and encouraged him to only talk to his teacher when absolutely necessary. We all took turns having lunch with him and his classmates so that we could prompt him to ask questions and participate in the natural conversation at the table. We were also able to help him with deciding what things did or did not need his teacher's attention, giving her a much-needed break. More important, this student was able to maintain and strengthen friendships with his

classmates that were previously deteriorating. His mother also gave permission for the teacher to discuss her son's condition with his classmates. This made a tremendous difference. The children responded positively and openly to his uniqueness. I know that working collaboratively made a tremendous difference in this child's daily experiences at school.

I have also seen successful collaboration in our sensory motor group. This is a small group of students that meets with the occupational therapist, the special education teacher, and myself. This is an hourlong group where the children practice proprioceptive, vestibular, and balance activities. The pupils also listen to short stories that encourage proper questioning and responses in addition to learning vocabulary, recalling of events, and sequencing skills. We finish with a craft activity that addresses their individual sensory and tactile issues.

Participating in grade-level planning meetings is important as well. This has been very helpful in planning my own lessons for the children. I am able to plan lessons dealing with the same science and social studies topics that they are learning in the classroom, making the time they spend in therapy a more meaningful experience. Meeting with teachers regularly keeps me informed of how my students are performing in their classroom.

A Concluding Thought

While I sometimes find a need for a few of my students to practice articulation, language, and social skills in my classroom, I also find a very real benefit in providing therapy in inclusive settings.

Doing so provides appropriate peer models for the pupil with a speech and language impairment, and it allows me the opportunity to work with all the students while being a consultant to the other teachers and paraprofessionals on my team. Children are able to learn in their least restrictive environment and have more opportunities to practice skills while being full-fledged members of their classrooms. Their peers also learn to be understanding of individual differences, and all of the children benefit from the extra adult support in the classroom. I believe that I have learned as much as my students have from my inclusive education experience. I have developed so much professionally by watching my colleagues in action. Inclusion has helped me to become a better speech–language pathologist.

—*Brooke T. Bunn* Former Speech–Language Pathologist Jefferson County (Alabama) Schools

Technology and Individuals With Speech and Language Impairments

Children with speech and language impairments represent a very heterogeneous group of individuals. When one considers technology for pupils with speech and language impairments, it is typically for students who have complex communication needs such as individuals with severe speech and language impairments, autism spectrum disorder, or intellectual disability. Technology use for these students is referred to as**augmentative and alternative communication (AAC)**. AAC "includes all forms of communication (other than oral speech) that are used to express thoughts, needs, wants, and ideas" (American Speech-Language-Hearing Association, n.d.). AAC devices enhance (that is, augment) or serve as an alternative to a student's communication. Researchers suggest that AAC has significant benefits for individuals with speech and language impairments (Clarke et al., 2012; Owens, 2014).

augmentative and alternative communication (AAC) Symbols, aids, strategies, and techniques used as a supplement or alternative to oral language.

Electronic communication boards are an example of an alternative or augmentative communication device.

AbleNet. Reproduced with permission

AAC is actually a diverse range of technology. AAC not only includes low-tech, mid-tech, and high-tech options, as discussed in Chapter 5, but also is typically categorized into aided and unaided technology. Aided technology refers to tools external to a person (for example, picture symbols, Proloquo2Go® on an iPad), whereas unaided technology consists of nonverbal means of communication such as facial expressions or gestures as well as American Sign Language (ASL) (American Speech-Language-Hearing Association, n.d.; Owens, 2014).

Low-tech AAC includes the use of picture symbols, such as Picture Communication Symbols (PCS) by Mayer-Johnson or Blissymbolics. With picture symbols, students often use a communication board or book to select symbols to communicate (American Speech-Language-Hearing Association, n.d.; Bondy, 2012). Mid-tech and high-tech AAC involves the selection of symbols or words to generate speech, using devices referred to as **speech-generating devices (SGDs)**. With mid-tech AAC, typically another individual records a finite set of words or phrases that a student can then select to communicate (for example, GoTalk by Attainment Company or Cheap Talk 8). With high-tech AAC, a pupil selects symbols or words to produce synthesized (digital) speech (for example, the Accent family by PRC or Tobii by Dynavox). Increasingly, AAC is using mobile technologies, such as tablets and smartphones. See the accompanying Spotlight on Technology feature for examples of AAC apps.

speech-generating device (SGD) A high-tech augmentative or alternative communication device capable of generating speech.

Spotlight on Technology

Augmentative and alternative communication (AAC) options are increasingly occurring as apps. As with dedicated AAC devices, AAC apps present a wide variety of options, including digital or synthesized speech, premade symbols or pictures or uploading one's own, grid display image, and symbols or typing (AAC TechConnect, 2014).

iOS App	Description
Proloquo2Go®	• Natural-sounding voice output symbol-based app • Customizable, including creating own buttons
SoundingBoard™	• Create own boards—including with own photos or preloaded symbols—and record messages
Flip Writer AAC	• Type message on a two-way keyboard that sender and receiver can both see; typed selection can also be presented via speech
Sono Flex	• Voice output symbol-based app • Uses SymbolStix® symbols
GoTalk Now	• Modeled after Attainment's dedicated GoTalk devices • App is customizable (chose a layout), and users can use symbols or insert their own images
Scene & Heard	• Visual scene display AAC • Provides scenes and vocabulary, and users can upload their own photos

Source: Adapted from E. Bouck, *Assistive Technology* (Thousand Oaks, CA: Sage, 2017).

Services for Young Children With Speech and Language Impairments

The very young child with a linguistic disorder represents a unique population. As knowledge regarding pediatric speech and language pathologies continues to expand, it has been noted repeatedly that there are time-locked “critical periods” for acquisition of communication skills. These windows of opportunity for language learning have historically been the subject of much study and debate. Is there an optimal time frame for providing intervention for communication disorders? Is there a point at which such intervention is really too late to be effective? Research suggests that for virtually all communication deficiencies, the younger the child at the time of intervention, the more positive the outcome (Cohen-Mimran, Resnik-Nevet, & Korona-Gaon, 2016; Guralnick, 2011).

Early intervention to address communication problems in the young child is grounded by four guiding principles put forth by the American Speech-Language-Hearing Association (2008): Services are (1) family centered and culturally and linguistically responsive; (2) developmentally supportive, promoting children’s participation in their natural environment; (3) comprehensive, coordinated, and team based; and (4) based on the highest-quality evidence available.

To provide effective intervention for the young child, we must first be able to identify those with speech and language impairments. Those at risk for having a delay in speech or language need to be screened early and at regular intervals. Children identified as high risk include, for example, youngsters from neonatal intensive care units, children with chronic ear infections, those with known genetic defects, and children with fetal alcohol syndrome, neurological defects, or delayed language.

The sooner early intervention begins for a youngster with communication disorders, the more promising the outcomes.

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Public Law 99–457 mandates that speech–language pathologists evaluate and treat children between the ages of 3 and 5. When providing services to infants, toddlers, and preschoolers, assessment of the family—its strengths, needs, and interaction patterns—is as important as the evaluation of the child. Because the structure of the American family is changing, caregivers other than parents may be involved in treatment strategies. Many of the newly developed rating scales, which specifically analyze communication-promoting behaviors between a child and his or her caregiver, reflect the importance of this relationship. This type of observation is a valuable tool in quantifying strengths and weaknesses in daily communicative interactions—for example, the level of vocabulary used with the child, the number of attempts to engage the child in communication, the quality of voice animation and body language, responses to the child's attempts to communicate, and imitation of the child's efforts—and planning appropriate remediation strategies.

Evaluation of language skills in the preschool child should always include such measures as adaptive behavior scales, parent interviews, and informal language sampling. More formal assessment tools for examining language in very young children are increasing in number. Many of these tests are developmental scales that look at language as part of the assessment process.

Preschoolers with speech and language impairments (whether as a primary or secondary disability) generally thrive in general education classrooms.

These settings provide daily interactions with peer models and exposure to a rich variety of experiences. Children have the opportunity to observe, learn, and practice age-appropriate social, communication, and cognitive skills. The single most essential element of language intervention in these settings is arranging the environment (McCormick, 2003b). Environmental arrangement entails selection and use of materials, arrangement of the physical space, and the provision of structure to activities.

Adolescents and Adults With Speech and Language Impairments

Transitioning from high school to the adult world presents a special challenge for professionals involved with adolescents with speech and language impairments. Many of these individuals encounter situations and issues that are similar to those faced by other young adults with and without disabilities, such as employment decisions, living arrangements, and postsecondary educational choices to mention only a few. This is a period of rapid change that is compounded by a host of social, emotional, and psychological factors. Searching for one's own identity, coping with emerging sexuality, and striving for independence are just some of the complex issues that are exacerbated by communication difficulties. Working effectively with adolescents who exhibit speech and language impairments requires tremendous understanding and empathy from the speech–language pathologist. The intense desire of the adolescent to be like others can often hinder well-intentioned diagnostic and rehabilitative efforts.

Family Issues

Families with children who have speech and language impairments, like all families, exhibit complicated dynamics. When a problem affects one member of the family, other members are likely affected (Gargiulo & Kilgo, 2020). It is important for professionals to understand and appreciate the emotional issues and stress that some families of children with communication disorders confront. Luterman (2017), for instance, describes the medical model of assessment as “diagnosis by committee.” In this model, parents are confronted by an array of professional “experts” delivering reports filled with technical jargon, much of which is neither understood nor retained. Indeed, many parents of children with speech and language impairments describe the initial assessment of their son or daughter as very unpleasant or upsetting. Unfortunately, contemporary medical and educational models for assessment and treatment of speech and language impairments are largely child centered in their approach. By ignoring the needs of the family, they often fail to address the concerns of those who are most significantly affected by the impairment.

Appropriately designed family-centered intervention is based only in part on formal assessment. The value of any assessment procedure is only as good as the intervention that accompanies it. Allowing parents to “tell their story,” share concerns, and “be the expert” regarding their child is essential to empower them as partners in the habilitation process. Including parents and family members as active participants in both assessment and habilitation encourages involvement from those most intimately involved with the child, increasing effectiveness in treating communication disorders. Ideally, parents then emerge as actual partners in the rehabilitative process (Owens, 2014).

The hour or two a week that a child with a speech or language impairment might spend with a speech–language pathologist is infinitesimal compared to the time spent with other adults (parent, teachers) and peers. The speech–language pathologist attempts to learn as much as possible about the child’s

activities in various environments so that all of the child's communication partners can be involved in the intervention process. For instance, the speech–language pathologist works with family members to develop a better understanding of the child's needs and how best to facilitate interaction and communication. Specifically, the speech–language pathologist collaborates with family members to help them learn how to keep conversations with the child focused on the present, reduce distractions during conversations, slow the rate and decrease the complexity of language directed to the child, and maximize nonlinguistic cues.

Issues of Diversity

The United States is currently experiencing record immigration. The number of foreign-born residents living in the United States is at its highest level in history, reaching over 42 million citizens (Kandel & Wasem, 2016). One result of this influx of new citizens is that one in four U.S. children has a parent who is an immigrant (Woods & Hanson, 2016). This most likely means that vast numbers of children who do not speak standard American English as their first language will probably need help with some aspect of language. Recent estimates suggest that approximately 4.8 million or 9.5 percent of public school students are considered English learners (National Center for Education Statistics, 2018). Unfortunately, research (Morgan et al., 2017) suggests that young children from culturally and linguistically diverse backgrounds, in comparison to youngsters from English-speaking households, are less likely to be identified and receive appropriate speech–language interventions, thereby heightening their risk for later academic and behavioral difficulties in school.

Over the past few years, the descriptor for individuals who are second-language learners has been changing. The term *limited English proficient* (LEP) is common in some educational circles; in fact, both IDEA 2004 and the No Child Left Behind Act incorporate this term when addressing the needs of students whose primary language is not English. Due to the perceived pejorative connotation associated with this term, the more contemporary label *English learner* (EL) is now gaining in popularity among professionals.

How families interact with their children and the prelinguistic skills that develop from these interactions vary considerably across cultures (Owens, 2020). Observations of non-Western cultural groups make it clear that the large literature on child-directed talk primarily describes Western parent–child interaction patterns. When working with children from culturally and linguistically diverse populations, the speech–language pathologist may draw teaching materials directly from the children’s homes and

communities, capitalizing on whatever communication skills they have, regardless of whether they are verbal or nonverbal, in English or another language.

The lack of reliable and valid assessments often makes it extremely difficult to accurately and fairly identify speech and language impairments in children from culturally and linguistically diverse populations (Guiberson & Atkins, 2012; Owens, 2014; Owens & Farinella, 2019). There is always the issue of whether speech and language variations are due to a disability or to the child's competency in the second language. Too often EL children are mistakenly placed in special education classes based on test scores that are normed on English-speaking students. Many of these students are misdiagnosed and incorrectly labeled as having an intellectual disability or a learning disability.

Intervention for EL children who have language impairments depends on their age, the severity of the disability, the goals of the family, and available social interactions along with vocational expectations (Bunce, 2003). Most intervention programs incorporate a variety of techniques similar to those used with monolingual children with language impairments, combined with techniques for second-language learners. These programs focus on the different components of language—phonology, morphology, syntax, semantics, and pragmatics. Additional techniques for second-language learners include (1) teaching vocabulary and syntax in the context of ongoing activities, (2) allowing time for comprehension to develop before insisting on production, (3) using predictable books, (4) using peer buddies, and (5) incorporating parents and other family members as teaching partners.

Trends, Issues, and Controversies

Speech and language impairments represent a *high-incidence disability*—an impairment that has far-reaching and pervasive effects. Advances in the areas of early intervention, genetic research, and enhanced assistive technology continue to improve the prognosis for those with speech and language disorders. As research data confirm the merits of early intervention for children with communication disorders, particularly language disorders (Lipkin & Schertz, 2008), medical and educational professionals have become increasingly aware of the urgent need for early and accurate diagnosis and timely, well-designed interventions.

Cultural diversity and nonstandard English have come to the forefront of the educational arena because of their implications for linguistic performance. Common tools for assessing speech and language skills will continue to be reviewed for their adequacy in measuring linguistic abilities of children who are increasingly multicultural.

Controversy persists regarding the etiologies of various speech and language disorders such as CAPD and stuttering. With increased understanding of the underlying neurophysiological basis of such problems, educational management strategies for these and other disorders will continue to improve.

Digital technology has certainly enlarged the array of electronic devices that increase message redundancy or offer viable alternatives to conventional methods of communication. Assistive technology now provides avenues for communication that did not exist only a few years ago.

Chapter in Review

The Nature of Speech, Language, and Communication (Learning Objectives 11.1 and 11.2)

- Speech is the expression of language with sounds—essentially, the oral modality for language.
- Language is a code whereby ideas about the world are represented through a conventional system of arbitrary signals for communication.
- Language has five components—phonology, morphology, syntax, semantics, and pragmatics—that are present at both the receptive and expressive levels.
- Communication is the exchange of ideas, information, thoughts, and feelings. It does not necessarily require speech or language.

Understanding Speech and Language Impairments (Learning Objectives 11.3 and 11.4)

- The most common speech problem is an articulation disorder, which includes substitutions, omissions, distortions, and additions.
- Stuttering and cluttering are examples of fluency disorders.
- Voice disorders are associated with the larynx. Phonation and resonance are illustrations of this disorder.
- Apraxia of speech involves both speech and language disorders. It results from the inability to position speech muscles necessary to produce speech sounds.
- Central auditory processing disorder (CAPD) is a problem in the processing of sound not attributed to hearing loss or intellectual ability.

Etiology of Speech and Language Impairments (Learning Objective 11.5)

- Speech and language problems can result from functional (without an obvious physical basis) or organic (associated physiological deficit) etiologies.
- Disorders may be congenital or the result of an acquired insult.
- Aphasia is the loss or impairment of language functions.
- Speech and language impairments are representative of a high-incidence disability; about 20 percent of children receiving a special education are receiving services due to a speech and language impairment.

Characteristics of Speech and Language Impairments (Learning Objective 11.6)

- The ability to understand what is meant by spoken communication is known as receptive language; the production of language that is understood by and meaningful to others is identified as expressive language.

Assessing Speech and Language Impairments (Learning Objective 11.7)

- Identifying speech and language impairments frequently involves collaborative teams using formal and informal performance measures.

Technology and Individuals With Speech and Language Impairments (Learning Objective 11.8)

- Augmentative and alternative communication (AAC) devices include symbols, aids, strategies, and techniques used as a supplement or alternative to oral language. Sign language and communication boards, both manual and electronic, are two examples of these devices.

Study Questions

1. What are the two main categories of communication disorder?
2. How does IDEA define speech and language impairments?
3. List the three broad categories of speech disorders, and give an example of each.
4. Define language, and explain how it is different from speech.
5. List several factors that cause or contribute to voice disorders.
6. At what age should a child be pronouncing all sounds correctly? What course of action should be taken if he or she is not?
7. List the five rules that must be learned for successful language acquisition to occur.
8. Define central auditory processing disorder. What types of intervention strategies are most effective with this population?
9. Describe the evolution of the role of the speech–language pathologist during the twentieth century.
10. How does a developmental disorder differ from one that is acquired?
11. How has family-centered early intervention influenced remediation strategies for young children with speech and language impairments?
12. Define expressive and receptive language.
13. Describe an effective informal measure of communication skills for the young child.
14. What difficulties are inherent to assessment of speech and language skills in a culturally diverse population?
15. Define AAC and describe its use by children with speech and language impairments.

Key Terms

speech, 335
language, 335
phonology, 335
morphology, 337
syntax, 337
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communication, 337
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language sample, 355
prelinguistic, 355
augmentative and alternative communication (AAC), 358
speech-generating devices (SGD), 358

Learning Activities

1. Visit an educational setting serving students with speech and language impairments. How was the students' classroom performance affected by their communication difficulty? How were their social interactions with other students and teachers affected? Were any special teaching techniques used or classroom modifications made to enhance their performance? Was therapy given outside of the general education classroom? Was this arrangement positive or negative? How did intervention differ for older children? What was your overall impression of the services provided?
2. Visit a clinic or hospital in your community providing services to persons with speech and/or language impairments. Interview the speech–language pathologist. What types of disorders are served? Are there special challenges in assessment techniques? What types of intervention strategies are used? What interaction does this professional have with the community at large and with area schools? Is there a team approach in use? Is there a family-centered remediation model for implementing therapy?
3. Prepare a resource book for your class that describes common types of speech and language impairments and their characteristics. Include appropriate assessment, referral, and remediation strategies. Provide information on causes and prevention, assistive technology, need for early intervention, and classroom strategies. Provide websites appropriate to each disorder.
4. Compile a list of local agencies (public and private), medical facilities, and civic groups that provide services to persons with speech and language impairments. Be sure to include contact information as well as a brief description of services provided.
5. Visit a local preschool program for children at risk for language delay. Interview a staff member. Find out how young children are screened for speech and language problems, and describe the process. Volunteer to help with screenings if possible. What types of language stimulation activities are used? How are families included in this process? What is your opinion regarding the effectiveness of the program?

Organizations Concerned With Speech and Language Impairments

American Speech-Language-Hearing Association

www.asha.org

American Cleft Palate-Craniofacial Association

https://acpa-cpf.org

Division for Communication, Language, and Deaf/Hard of Hearing, Council for Exceptional Children

https://dcdcec.org

National Craniofacial Association

www.faces-cranio.org

National Easter Seals Society

www.easterseals.com

Reflecting on Standards

The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Professional Learning and Ethical Practice (CEC Initial Preparation Standard 6.3)

Reflect on what you have learned about how students with speech and language impairments are diagnosed. If you had a student in your class with a culturally or linguistically diverse background who exhibited signs of speech or language impairments, what kinds of issues might you have in defining and identifying if he or she had exceptional learning needs? How might you need to work with families and school personnel to make sure to address the student's learning needs?

Focus on Instructional Planning and Strategies (CEC Initial Preparation Standard 5.4)

Reflect on what you have learned about students with speech and language impairments. If you were to have a student in your class who needed to daily meet with a speech–language pathologist, how might you support the student's attendance at therapy? How do you think the student might feel about standing out from his or her peers? How might his or her exceptional learning needs affect his or her relationships with peers? What can you, as a teacher, do to help alleviate any discomfort for the student?

Student Study Site

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12 Individuals With Hearing Impairments

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Learning Objectives

After reading Chapter 12, you should be able to:

12.1 **Define** *hearing impairment*, *deaf*, and *hard of hearing*.
12.2 **Contrast** conductive and sensorineural hearing loss.
12.3 **Explain** the various assessment procedures used to measure hearing loss.
12.4 **Describe** the difference between prelingual and postlingual hearing impairments.
12.5 **Summarize** the historical evolution of educational services for children and youth with hearing impairments.
12.6 **List** possible causes of hearing loss.
12.7 **Identify** representative academic, social, and language characteristics of individuals with hearing impairments.
12.8 **Compare** among oral, manual, and total communication approaches for instructing students with hearing impairments.
12.9 **Explain** how technology benefits individuals with hearing impairments.
12.10 **Summarize** educational services for persons with hearing impairments across the life span.
12.11 **Describe** the concept of the Deaf culture.

A Parent's Story

We didn't think we would ever have a child. We were married for eleven years before the magic day. Christine is our little miracle child. Preparing for parenthood was lots of fun. We decorated a nursery, went shopping for furniture and clothes, and set up a college fund. Baby showers and teas were an exciting end to an uneventful pregnancy. My pregnancy was normal with no complications. The delivery was induced since my blood pressure was rising at the end. I had natural childbirth. She was beautiful—two eyes, one nose, one mouth, ten fingers, ten toes, and all in the right places. All the early checkups were routine, with no problems.

I didn't start to worry until Christine was about 6 months of age. My pediatrician listened to my concerns. At an office visit, Christine was playing with the paper on the exam table when the doctor came in. He clapped his hands loudly. I almost jumped out of my skin, but our little girl never knew he was in the room. He examined her ears and found nothing wrong. He sent us to an ENT (ear, nose, and throat specialist).

The first ENT said that there must be fluid behind her eardrums, so we got tubes. That didn't seem to make any difference. That ENT sent us to another ENT. The second ENT told me I was a hypochondriac and there was nothing wrong with my child. Finally, we were sent to another ENT, who diagnosed Christine as being hearing impaired, but because of her age, he was not sure of the severity. Let the grieving begin—no one plans

on having a child with a disability. All our hopes and dreams popped like a balloon. What were we going to do? Where would we find help?

We started reading and calling, talking to everyone. Christine got her first set of hearing aids before her first birthday, but they were not strong enough. Each time we got bigger and more powerful hearing aids. At age 1, she was finally diagnosed as profoundly hearing impaired. We wanted her to talk. We wanted her to be independent. I didn't want to send her to a special school, isolated from society.

We started auditory-verbal therapy. We made it a part of our daily life. It was once told to us that auditory-verbal therapy was living your life but narrating everything you see and do. After about six months with the most powerful hearing aids made, we didn't see any or very much progress.

Being in the medical profession, we started reading and talking to people about cochlear implants. That would be the next step. We talked to several surgeons in Georgia, Texas, and Tennessee, and here at home in Alabama. Christine was implanted at 2 years, 4 months of age, and the implant was turned on the first of November. It was a frightening time for all of us. She was our little miracle child, and we had waited so very long for her. Christine's and our lives began again after her implant was stimulated. It worked! The first month was very hard on all of us, with lots of tears from us all. It was a new world with sound. Christine was turning to her name within two weeks. We worked with her every day, all waking hours. We sang, talked, and babbled.

Christine was enrolled in a church preschool with normally hearing kids. We pushed her out there, but we were always right behind her all the way. Currently, Christine is in a mainstreamed elementary school with a sound field system in the classroom. She gets some help from a teacher of the hearing impaired when she needs it. We are there to help with anything she might not understand and to reinforce what is taught in the classroom. She is making straight As so far. Christine enjoys dancing competitively. We don't know how she does it.

If you were to sit and talk to her today, you would never know she had a disability. She has beautiful speech with great inflections in her voice. We were at a company party, and there were a lot of people we didn't know and who didn't know us. The kids were all swimming in the lake. I overheard one little boy ask his mother why Christine didn't talk to him, as she did earlier that day. I interrupted and asked the little boy if she had her back to him while he was talking. We told him she was deaf and could not hear him without her processor on. All the other parents were astonished. "But she talks so well—she doesn't sound deaf or sign," people said. We had to tell them all about cochlear implants and what a huge change it made in our life. Christine sounds like any other normally hearing child. That made us feel great. Strangers couldn't tell she was hearing impaired.

If we can tell anyone about cochlear implants, it would be to say that it was the best thing that happened to us. It is worth looking into and doing. It is a lot of hard work. As a family, we have dedicated many hours and much money to the rehabilitation of Christine.

We are very grateful for having a child like her. She is a joy to be with, and watching her now—all the hard work we did early on has paid off. Granted, she will never have normal

hearing and has to work harder than anyone in her classes, but we wouldn't change a thing. She is a great example of what a cochlear implant at an early age can do for someone.

—Kitty McBride

For most people, hearing is an automatic process. The ability to hear allows individuals to gain information about themselves and the world around them through development of communication skills and identification of environmental auditory clues. Language, the central communication skill in humans, is learned by interacting with the environment and associating stimuli in numerous ways (Allen & Cowdery, 2015). Typically, an individual's language is refined and speech is developed through a series of activities: observing, listening, understanding, imitating others, hearing oneself, and comparing and perfecting speech and language components of the communication process. Parts of these activities and the development of language and speech may be difficult for individuals with hearing impairments.

Definitions and Concepts of Hearing Impairment

Hearing impairment is a general term used to describe disordered hearing. We should point out that the use of this term is offensive to some individuals who are deaf and hard of hearing because the word *impairment* implies a deficiency. Although we acknowledge this viewpoint, the label *hearing impairment* is used by the federal government when describing this disability category. We have chosen to be consistent with the terminology employed by the U.S. Department of Education.

> **hearing impairment** Less than normal hearing (either sensitivity or speech understanding) resulting from auditory disorder(s).

Hearing sensitivity loss refers to a specific aspect of hearing impairment, and is ordinarily described as ranging in severity from mild to profound. The term **deaf** is often overused and misunderstood, and may be applied inappropriately to describe the various types of hearing loss. It can be defined as referring to those for whom the sense of hearing is nonfunctional for the ordinary purposes of life. IDEA 2004 (the Individuals with Disabilities Education Improvement Act, or PL 108–446) describes deafness as a hearing loss that adversely affects educational performance and is so severe that the child is impaired in processing linguistic information (communication) through hearing, with or without amplification (hearing aids). The term *Deaf*, used with a capital *D*, refers to those individuals who want to be identified with Deaf culture. It is inappropriate and misleading to use the term *deaf* in reference to any hearing loss that is mild or moderate in degree.

> **hearing sensitivity loss** Poorer than normal auditory sensitivity for sounds; usually measured in decibels (dB) using pure tones.

> **deaf** Limited or absent hearing for ordinary purposes of daily living.

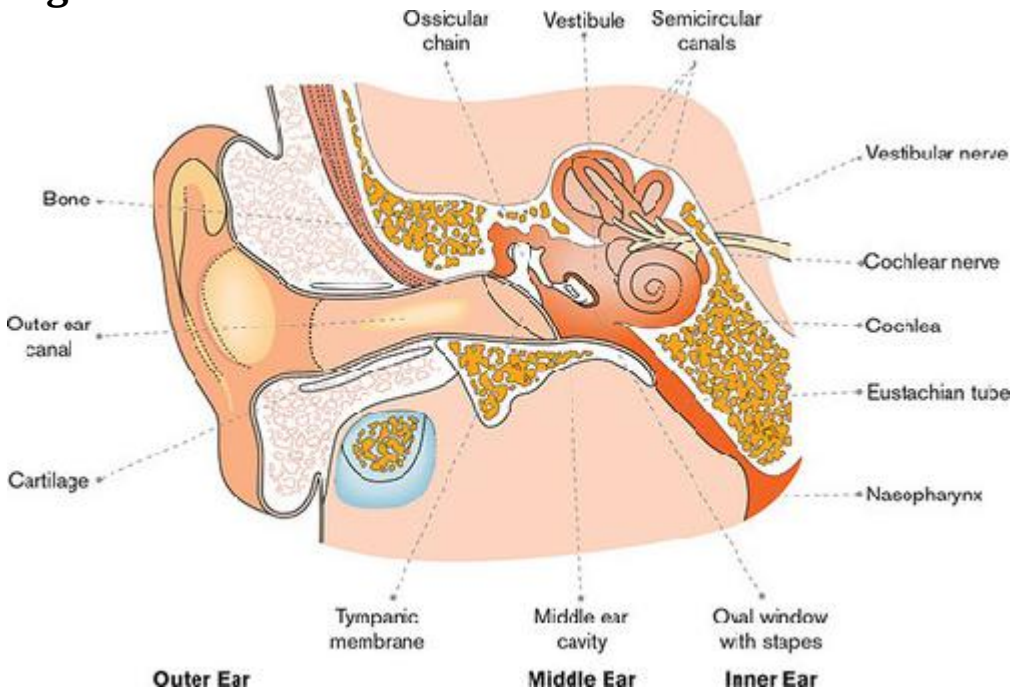
Persons who are hearing impaired but possess enough residual hearing (remaining usable hearing) to hear and understand speech may be described as **hard of hearing**. Individuals who are hard of hearing are those in whom the sense of hearing, although defective, is functional either with or without a hearing aid. For these persons, the use of a hearing aid is frequently necessary or desirable to enhance residual hearing (Owens & Farinella, 2019). The extent to which persons with hearing impairment have difficulty developing speech and language is heavily influenced by the degree of hearing loss.

hard of hearing Refers to a person who has a hearing loss but uses the auditory channel as the primary avenue for oral communication, with or without a hearing aid.

The Anatomy of the Auditory System

The ear is divided into four connected sections: the **outer ear** (also known as the auricle), the **middle ear**, the **inner ear**, and the **central auditory nervous system** (see Figure 12.1). The outer ear functions to protect the middle ear, direct sound into the ear canal, and enhance sound localization. In addition, the outer ear serves to enhance the intensity of sounds in the midfrequency range where the sound spectrum of speech is located.

Figure 12.1 A Cross Section of the Human Ear



Source: Redrawn from J. Northern, *Hearing Disorders*, 3rd ed. (Boston, MA: Allyn & Bacon, 1996), p. 16.

outer ear The most visible (external) part of the ear, useful in funneling sound to the ear canal and in localizing the source of sound.

middle ear The air-filled space behind the eardrum that contains three tiny bones (ossicles) that carry sound to the inner ear.

inner ear The snail-shaped part of the ear (cochlea) containing the organs of hearing and balance.

central auditory nervous system Part of the hearing mechanism connecting the ear to the brain.

Sound waves enter the outer ear and travel through the ear canal to the **tympanic membrane** (eardrum), causing a vibrating action. The tympanic membrane is attached to one of the three smallest bones in the body, the **malleus** (hammer), through which the sound vibrations are transmitted to the second and third of the smallest bones, the **incus** (anvil) and the **stapes** (stirrup). These three bone structures form the **ossicular chain**, a bridge of bones across which sound vibrations travel to the inner ear. Together with the tympanic membrane, the ossicles convert airborne sound waves into mechanical (vibratory) energy and transfer this to the inner ear.

tympanic membrane A thin, membranous tissue between the ear canal and the middle ear that vibrates when struck by sound waves; also called the eardrum.

malleus The first and largest of the three middle ear bones for conducting sound to the inner ear. Also called the hammer, it is attached to the tympanic membrane.

incus The second of the three middle ear bones for conducting sound to the inner ear, located between the malleus and the stapes; also called the anvil.

stapes The third of the middle ear bones for conducting sound to the inner ear. It resembles a stirrup in shape and is sometimes called the stirrup. It is the smallest bone in the body.

ossicular chain Three bones in the middle ear (malleus, incus, and stapes) that connect the eardrum to the inner ear and help to amplify sounds.

The footplate of the stapes, the smallest of the three middle ear bones, fits into the **oval window**, an opening into the inner ear. The vibratory motion of the stapes footplate in the oval window transmits mechanical energy to fluid-filled channels within the snail-like structure of the **cochlea** (inner ear). The cochlea houses the end organ of hearing, called the **organ of Corti**. Waves set up in the cochlear fluid, the result of vibratory energy from the tympanic membrane and ossicular chain, stimulate nearly 20,000 tiny hair cells in the organ of Corti arrayed along the length of the cochlea. This mechanical energy is transformed into electrical nerve impulses. The hair cells near the oval window respond to high-frequency energy, and those in the middle and at the apex of the cochlea respond to low-frequency energy. The resultant nerve impulses course through the auditory nervous system pathways to the auditory cortex, located in the temporal lobe of the brain, for message decoding (Buethe, Vohr, & Herer, 2013; Martin & Clark, 2019).

oval window The link between the inner ear and the middle ear.

cochlea The shell- or spiral-shaped structure in the inner ear that is responsible for hearing.

organ of Corti An organ of hearing found within the cochlea.

Classifications of Hearing Loss

The classification or type of hearing loss refers primarily to the site of disorder in the auditory system causing the hearing impairment. A **conductive hearing loss** is caused by a blockage or barrier to the transmission of sound through the outer or middle ear. It is referred to as a conductive loss because sound is not conducted normally through the mechanical sound-conducting mechanisms in the disordered outer or middle ear (Owens & Farinella, 2019). As a result, sounds are soft or attenuated in some way for the listener, but clearly heard when loud enough. Common causes of a conductive loss include inflammation, infection of the middle ear (otitis media, discussed later in the chapter), objects in the ear, or malformations of the outer or middle ear. Typically, a conductive loss can be reversed by medical or surgical intervention.

> **conductive hearing loss** The loss of sound sensitivity produced by abnormalities of the outer ear and/or middle ear.

A **sensorineural hearing loss** is caused by disorders of the inner ear (cochlea), the auditory nerve that transmits impulses to the brain, or both. In this type of hearing loss, there is not only a loss of hearing sensitivity, but sounds are usually distorted to the listener, and speech often is not heard clearly. This type of hearing loss may be congenital or may occur as a result of accident, illness, or disease. Although a small percentage of sensorineural hearing losses can be medically or surgically treated, most cannot be and are permanent in nature (Owens & Farinella, 2019).

> **sensorineural hearing loss** The loss of sound sensitivity produced by abnormalities of the inner ear or nerve pathways beyond the inner ear to the brain.

Accurate assessment of a hearing loss is important for determining its impact on communication.

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A **mixed hearing loss** is the combination of a conductive loss and a sensorineural loss. In many cases, the conductive portion of the hearing loss may respond to medical or surgical treatment. Typically, however, the listener continues to experience the effects of the residual sensorineural impairment and may be a candidate for a hearing aid.

> **mixed hearing loss** Hearing loss resulting from both conductive and sensorineural hearing impairments.

A **central hearing disorder** results from disorder or dysfunction in the central auditory nervous system between the brain stem and the auditory cortex in the brain. A hearing loss may or may not accompany this type of hearing impairment. The listener with this impairment may be able to hear, but cannot make sense of or understand speech. Additional problems, such as short- and long-term auditory memory and reading comprehension difficulties, may also be present (Salvia, Ysseldyke, & Witmer, 2017). This impairment may be referred to as a central auditory processing disorder, as described in Chapter 11.

> **central hearing disorder** Difficulty in the reception and interpretation of auditory information in the absence of a hearing loss.

Measurement of Hearing Impairment

An **audiologist** is a professional who holds certification and/or licensure and provides evaluation, rehabilitation, and prevention services to persons with hearing impairments. Audiologists are the primary specialists in evaluating hearing loss and determining the extent to which that loss constitutes an impairment and disability. Typically, the assessment of hearing begins with the goal of accurately measuring hearing threshold levels. If a hearing loss exists, the audiologist uses test and measurement procedures to determine the extent of the deficit, the impact on communication function, whether the hearing loss can be treated medically or surgically, and whether the use of hearing aids or other amplification systems is indicated.

audiologist A professional who studies the science of hearing, including anatomy, function, and disorders, and provides education and treatment for those with hearing loss.

Auditory threshold measures obtained by the audiologist during a hearing evaluation are plotted on a graph called an **audiogram** (see Figure 12.2). The horizontal axis of an audiogram is divided into octave intervals corresponding to the principal test frequencies of interest during the evaluation. The **frequency** of a particular sound is a measure of the rate at which the sound source vibrates and is measured in **hertz (Hz)**, so named in honor of a German scientist. The frequency of sounds can be precisely measured electronically. Pitch is the psychological correlate of frequency and cannot be measured as precisely because it is perceived differently from one person to the next. But in general, as the frequency of a sound increases, a listener perceives the sound as having increased in pitch. The audiogram typically displays a range of frequencies from about 250 Hz to 8,000 Hz. Most sounds important to human beings fall between 125 and 8,000 Hz, with most of the energy in human speech concentrated in the range of 500 to 3,000 Hz (Berk, 2013).

audiogram A graphic representation of audiometric findings showing hearing thresholds as a function of frequency.

frequency The number of vibrations per second of a given sound wave; typically measured as cycles per second (cps) or hertz (Hz).

hertz (Hz) A unit of measurement for sound frequency, expressed as cycles per second (cps).

The vertical axis of the audiogram displays hearing threshold levels (HTLs) in increments of 10 **decibels (dB)**, with 0 dB at the top (representing no hearing loss). As the hearing loss increases, the hearing thresholds are plotted lower down on the audiogram. Decibels are units of sound pressure. Sound pressure is a physical measure that can be precisely determined. It is associated with the psychological sensation of loudness, which is not perceived identically by all persons. In general, as sound pressure in decibels increases, the sensation of loudness increases. Human speech normally ranges between a 40- and 60-dB sound pressure level; any sound above a 130-dB sound pressure level, such as large electrical turbines (145 dB), can be extremely painful and damaging (Bess & Humes, 2008). Table 12.1 presents the decibel levels of everyday sounds from our environment.

decibel (dB) A unit of measure expressing the magnitude of a sound relative to the softest sound to which the normal human ear can respond.

During the basic hearing evaluation process, **pure-tone audiometry** is conducted through earphones or other means to obtain an audiogram. Stimuli are delivered to the listener until a test signal of a particular frequency is barely audible 50 percent of the time. It is then presented to the person being evaluated, and a hearing threshold level for that signal can be plotted on the audiogram. This is a convenient and well-accepted measurement technique permitting an efficient determination of hearing threshold levels across the frequency range most important for hearing and understanding speech and environmental sounds. Ordinarily, pure-tone audiometry will be conducted in two modes, air conduction and bone

conduction. **Air-conduction audiometry** is carried out with earphones or speakers and reflects hearing thresholds measured through the outer, middle, and inner ears. In contrast, **bone-conduction audiometry** is carried out with a small vibrator placed on the forehead or on the bone behind the ear, stimulating the inner ear directly. This reflects hearing sensitivity as measured primarily from the inner ear, not from the conductive mechanism in the outer and middle ears. A comparison of air- and bone-conduction hearing threshold levels forms the basis of determining the type of hearing loss present.

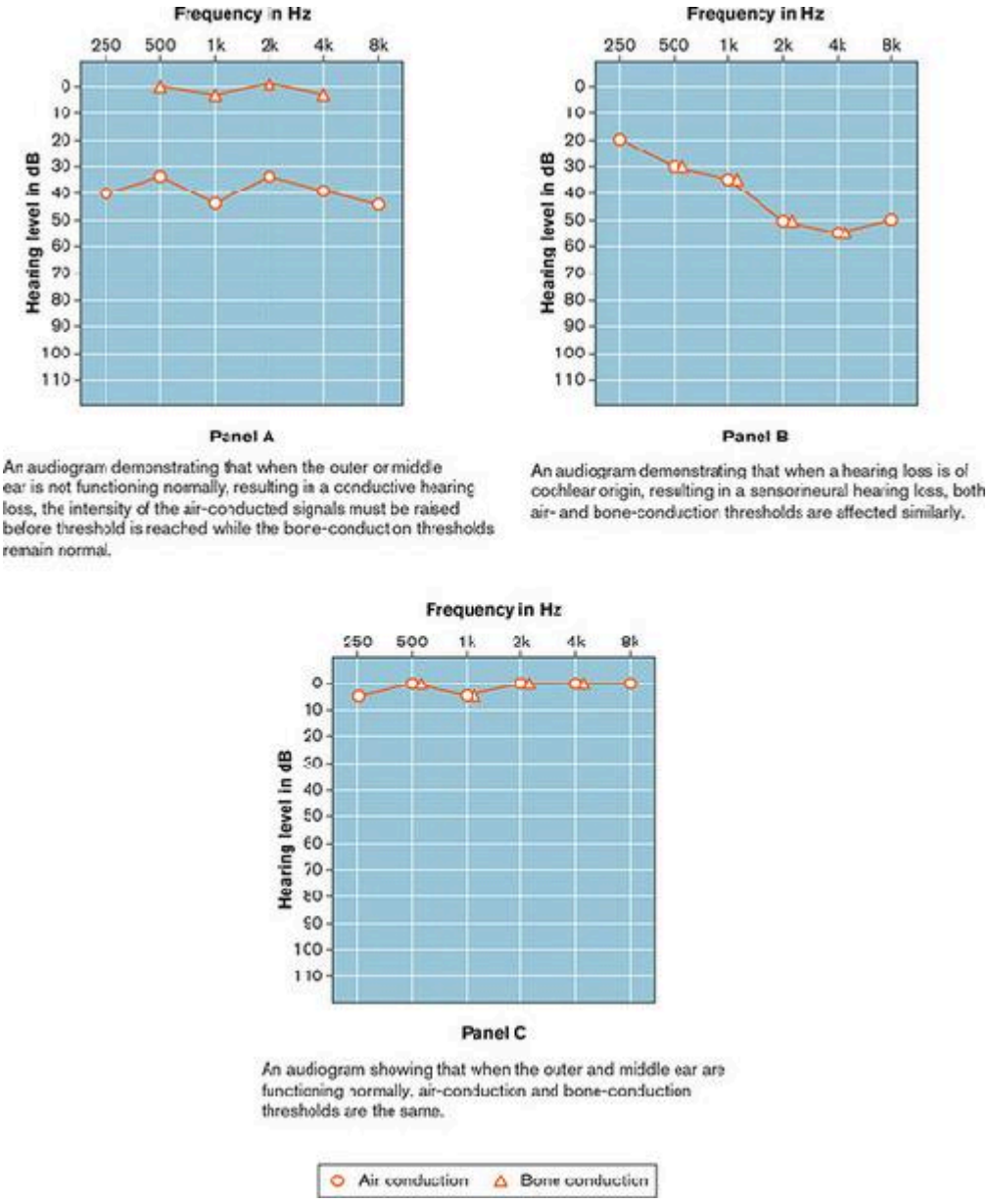
pure-tone audiometry A procedure for measuring hearing sensitivity at certain frequencies using tones that are presented at various intensities.

air-conduction audiometry A procedure for measuring hearing sensitivity at certain frequencies using pure tones presented to the listener through earphones or speakers.

bone-conduction audiometry A procedure for measuring hearing sensitivity at certain frequencies using pure tones presented through an oscillator placed on the forehead or mastoid bone of the listener. Sound is conducted to the inner ear through the bones of the skull.

For example, Panel A in Figure 12.2 (page 372) shows a conductive hearing loss. When the audiogram is examined closely, the bone-conduction HTLs (Δ) can be seen to be clustered around the 0-dB level, suggesting no hearing loss for these stimuli. On the other hand, the air-conduction HTLs (O) cluster around the 40-dB hearing level. These results suggest that, when the inner ear is stimulated directly by bone conduction, hearing thresholds are normal. However, when the test stimuli are delivered through the ear canal, a 40-dB hearing loss is present. This leads the audiologist to suspect the presence of some conductive disorder affecting the outer or middle ear transmission system that may be causing the hearing loss. Panel B in Figure 12.2 displays findings for an individual with similar bone- and air-conduction deficits, indicating mild to moderate sensorineural hearing loss. Panel C in Figure 12.2 illustrates normal hearing threshold levels. It can be seen that both Δs (bone conduction) and Os (air conduction) cluster around the 0- to 10-dB range at each test frequency, suggesting no hearing loss.

Figure 12.2 Audiograms Demonstrating Types of Hearing Loss


Frequency in Hz
250 500 1k 2k 4k 8k
Hearing level in dB
0 10 20 30 40 50 60 70 80 90 100 110
Panel A
An audiogram demonstrating that when the outer or middle ear is not functioning normally, resulting in a conductive hearing loss, the intensity of the air-conducted signals must be raised before threshold is reached while the bone-conduction thresholds remain normal.
Frequency in Hz
250 500 1k 2k 4k 8k
Hearing level in dB
0 10 20 30 40 50 60 70 80 90 100 110
Panel B
An audiogram demonstrating that when a hearing loss is of cochlear origin, resulting in a sensorineural hearing loss, both air- and bone-conduction thresholds are affected similarly.
Frequency in Hz
250 500 1k 2k 4k 8k
Hearing level in dB
0 10 20 30 40 50 60 70 80 90 100 110
Panel C
An audiogram showing that when the outer and middle ear are functioning normally, air-conduction and bone-conduction thresholds are the same.
Air conduction
Bone conduction

Source: Adapted from B. Stach, *Clinical Audiology: An Introduction*, 2nd ed. (Clifton Park, NY: Delmar/Cengage Learning, 2010), pp. 89–91.

Table 12.1 Decibel Levels of Common Environmental Sounds

Table 12.1 Decibel Levels of Common Environmental Sounds

Noise levels are measured in decibels (dB). The higher the decibel level, the louder the noise. Sounds louder than 80 dB are considered potentially hazardous. The noise chart below gives an idea of average decibel levels for everyday sounds around you.	
Human Perception	Decibel Level
Painful	• 150 dB = rock music peak • 140 dB = firearms, air raid siren, jet engine • 130 dB = jackhammer • 120 dB = jet plane takeoff, amplified rock music at 4–6 feet, car stereo, band practice
Extremely Loud	• 110 dB = rock music, model airplane • 106 dB = timpani and bass drum rolls • 100 dB = snowmobile, chain saw, pneumatic drill • 90 dB = lawnmower, shop tools, truck traffic, subway
Very Loud	• 80 dB = alarm clock, busy street • 70 dB = busy traffic, vacuum cleaner • 60 dB = conversation, dishwasher
Moderate	• 50 dB = moderate rainfall

	• 40 dB = quiet room
Faint	• 30 dB = whisper, quiet library

Source: Adapted from the American Speech-Language-Hearing Association. Available at http://www.asha.org/public/hearing/disorders/noise.htm

Other Types of Hearing Assessment

Often, a hearing screening is the initial point at which hearing loss is suspected, and more sophisticated audiological procedures may be required. The American Speech-Language-Hearing Association (ASHA, 2002) has developed guidelines for hearing screening and suggests that the process involve (1) a case history; (2) visual inspection of the outer ear, ear canal, and eardrum; (3) pure-tone audiologic hearing screening; and (4) tympanometry screening. It is important to note that hearing screening aims to determine only whether a hearing loss may be present, not the degree or type of hearing impairment.

Audiologists are trained to conduct hearing screening programs in hospital newborn nurseries, in schools, and for adults. Some school systems employ audiologists, and hearing screening programs may fall within their purview. However, in most school settings, it is the speech–language pathologist who is best equipped to conduct hearing screening, refer students who are suspected of having a hearing loss for further audiologic evaluation, and make recommendations for school placement. Audiologic assessment is an essential component in the determination of a hearing loss and its impact on communication. However, a complete assessment battery, including assessment of cognitive functioning, speech and language skills, social/emotional adjustment, and academic achievement, is required for appropriate program planning (Gargiulo & Kilgo, 2020).

Special assessments are often used when evaluating the hearing of young children or students with special needs.

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Hearing is a complex hierarchy of functions, the assessment of which requires highly sophisticated instrumentation and procedures in a clinical setting. Furthermore, testing procedures appropriate for adults are not useful with young children and individuals with special needs. For example, **play audiometry** is often used with children who are difficult to test or unable to follow simple commands. In this procedure, the child is conditioned to respond to sounds in specific ways in order to determine the hearing threshold levels. **Speech audiometry** measures an individual's **speech recognition threshold (SRT)**, as well as that person's speech recognition ability in various listening conditions. Other types of auditory system assessment include electrophysiological measures of auditory function from the inner ear through the auditory brain stem to the cortex of the brain (**auditory evoked potentials**). **Evoked otoacoustic emissions** from the inner ear can be measured with sensitive microphones to examine functions in the inner ear far beyond the understanding of scientists in the past. To detect possible problems in the middle ear, **acoustic immittance** measures are used, placing a small probe in the ear to measure the transmission of sound through the eardrum and ossicular chain (American Speech-Language-Hearing Association, 2019b). Using all of these procedures, audiologists have opened new windows into mechanisms to evaluate human hearing, leading to better assessment and remediation for those with hearing impairments.

play audiometry A method for measuring hearing sensitivity in young children by rewarding correct responses; turning the evaluation situation into a game in order to maintain interest and cooperation.

speech audiometry A set of procedures for measuring auditory perception of speech, including syllables, words, and sentences.

speech recognition threshold (SRT) A measure of threshold sensitivity for speech. The SRT represents the softest sound level at which a listener can identify the stimuli 50 percent of the time.

auditory evoked potentials Neural impulses produced from within the auditory system in response to stimulation of the auditory pathway and recorded as bioelectric events using a special computer.

evoked otoacoustic emissions Sounds produced by the inner ear in response to auditory stimulation and measured in the ear canal.

acoustic immittance A technical term for measurements of middle ear function.

Age of Onset

The effects of hearing impairment depend significantly on the age at which the impairment occurs. **Prelingual** hearing impairment refers to disordered hearing present at birth or occurring before the development of speech and language. **Postlingual** impairment describes an auditory deficit acquired after the acquisition of speech and language (Berk, 2013). The age at which the hearing loss occurs is critical because normal language development is very much dependent on an intact auditory system.

prelingual Referring to the period of time prior to a child's development of language.

postlingual Referring to the period of time after a child has developed language.

Not surprisingly, postlingually deaf children generally develop better speech, language, reading, and writing skills than prelingually deaf youngsters. Currently, great importance is placed on the early identification of hearing impairment in young children so that early intervention can reduce the effects of the hearing impairment on these skills, as well as on other areas such as social/cognitive development and academic achievement (National Center for Hearing Assessment and Management, 2019a).

Professionals estimate that hearing loss affects 12,000 children born in the United States each year; approximately 3 in 1,000 babies are born with permanent hearing loss. Hearing loss is the most common congenital disorder in newborns (March of Dimes, 2019; Owens & Farinella, 2019). All states screen newborns for hearing loss, and forty-four states have legislation that mandates hearing screening of newborns prior to discharge from the hospital (American Academy of Pediatrics, 2016).

A Brief History of the Field

The history of education of the hearing impaired is complex and controversial. Hearing impairments have probably existed in North America since the early settlement of this area by diverse Native American populations. Despite occasional references to provision of educational services for individuals with hearing impairments, however, there is no evidence of any organized program development until the nineteenth century (Moores, 2001).

In 1817, the first school in the United States for students with significant hearing impairments, the Connecticut Asylum for the Education and Instruction of Deaf and Dumb Persons, was established in Hartford, Connecticut. This institution was begun through the efforts of a young divinity student named Thomas Hopkins Gallaudet. The name of the school was eventually changed to the American School for the Deaf, and the student population broadened to include individuals with hearing impairment from other states (Moores, 2001).

During this time period in France, a number of schools for the hearing impaired were experimenting with l'Epée's methods of communication, which were primarily manual. Gallaudet visited these schools and was greatly influenced by the work of l'Epée. In an effort to establish effective systems of **manual communication** in the United States, Gallaudet brought Laurent Clerc, a deaf Frenchman and well-known educator of the hearing impaired, to the United States. However, other American deaf educators went to Europe and were impressed by the **oral approaches** and philosophies. Of special interest were those methods that discouraged the use of any form of manual communication or sign language (Van Hasselt, Strain, & Hersen, 1988).

manual communication Communication methods that utilize fingerspelling, signs, and gestures.

oral approaches Methods of instruction for children with hearing impairments that emphasize spoken language skills. Methodology attempts to use the child's residual hearing and employs auditory training and speechreading.

Many parents of children with significant hearing impairments assumed that living and learning with other individuals with similar problems was best for their children, and early formal education efforts were centered primarily in residential schools. Residential schools at this time were selective and would not serve all students with significant hearing impairments, especially those from minority groups or those with other significant disabilities. Day schools gained popularity partly because of these restrictive policies.

In 1864, Abraham Lincoln signed legislation establishing the nation's first college for the hearing impaired, known today as Gallaudet University. However, the debate over which method (oral or manual) was more appropriate for the instruction and communication of individuals with significant hearing impairments was now in full force. The two central figures in this debate were Thomas Gallaudet's son Edward, a renowned legal scholar, and Alexander Graham Bell, known to most as the inventor of the telephone and audiometer, who was an internationally recognized educator of the deaf. Bell's position centered on the issue of segregation in policy and practice. He believed that the manual philosophy, particularly in residential schools, as well as the use of sign language, fostered segregation of individuals with significant hearing impairments from the mainstream of society. Bell proposed a number of radical pieces of legislation that would (1) eliminate residential schools, (2) ban the use of manual communication in any form, (3) legislate that no adult with a significant hearing impairment could become a teacher of the deaf, and (4) forbid two adults with significant hearing impairments to marry. Interestingly, for many years the oral approach was more widely accepted than the manual position.

Edward Gallaudet strongly opposed these positions from both a moral and a methodological point of view. He believed that those who used the manual method (1) could learn when expectations were appropriately high, (2) would not feel isolated from society, (3) could and would participate in

general life activities, and (4) would benefit socially by having friends with common interests (Moores, 2001). Eventually, Gallaudet's position gained support in Congress through appropriations to establish teacher preparation programs emphasizing the manual approach.

In the 1970s, **total communication (TC)**—combining a number of sensory modalities with manual and oral communication—was adopted by many professionals as the best approach to working with individuals with significant hearing impairments. Those who argued for TC criticized the practice of keeping many children with hearing impairments in oral programs until 9 or 10 years of age, especially those who had limited early success, because critical periods for attaining the basic linguistic principles were potentially missed. Those who argued against TC expressed concern that it would be difficult to emphasize all methods of communication and do justice to all. They further argued that the manual method would be the primary avenue of communication because it was significantly quicker and easier to learn. The debate continues today, indicated by the fact that Gallaudet University publishes a journal with a total communication orientation (*American Annals of the Deaf*) and AG Bell publishes one with an oral orientation (*Volta Review*). Both journals are world renowned for their quality of content and research articles.

total communication (TC) A method of communication for students with hearing impairments, designed to provide equal emphasis on oral and signing skills to facilitate communication ability.

The educational placement options available for children with hearing impairments today are a result of historical, political, and cultural forces. Since the 1980s, there has been a significant increase in the visibility of cultural advocacy groups for individuals who are hearing impaired. The "deaf rights" movement, embraced by many residential schools and deaf communities, increasingly polarized proponents of various methodologies. Advanced medical interventions such as gene therapy and cochlear implantation were not initially embraced by many culturally deaf adults, further complicating the cultural controversy. Educators today struggle to determine what constitutes the least restrictive environment (LRE) within

the public school arena for children with significant hearing impairment. Although a number of educational placement options are available to facilitate LRE, parents as well as professionals frequently find themselves drawing legal and educational battle lines simply trying to *define* what constitutes such an environment.

The 1997 amendments to IDEA (PL 105–17) introduced a requirement to consider the communication needs of children with hearing impairments when making educational placement decisions. IDEA 2004 continues this stipulation. Communication-rich environments are an essential element in the education of children who are deaf and hard of hearing (Katz & Schery, 2006). What might be the LRE for many other children with disabilities may not be the LRE for a student with a hearing impairment because of the child's unique communication needs. Are there peers at the recommended placement site who can communicate with the child? Does the teacher have adequate skills in the communication mode typically used by the child? Does the teacher possess the skills necessary to meet the unique instructional needs of a student with hearing impairments? There are many questions regarding the implementation of the LRE requirement to consider —especially the communication needs of the pupil. Unfortunately, some professionals responsible for making placement recommendations frequently do not have an adequate understanding of the educational needs of children who are deaf or hard of hearing (Katz & Schery, 2006).

Prevalence of Hearing Impairment

While not a precise estimate, it is generally believed that 15 percent of the population over the age of 18, or in excess of 37 million people in the United States, experience some degree of hearing loss. This number is projected to reach 40 million citizens by 2025 (National Institute on Deafness and Other Communication Disorders, 2019c; Owens & Farinella, 2019). Current information suggests that hearing loss increases as people age; 18 percent of baby boomers (individuals in their mid-40s to mid-60s) experience hearing loss while 29 percent of 65-year-olds have a hearing loss. By way of comparison, less than 2 percent of children under age 18 have a hearing loss (Kochkin, 2019).

According to the U.S. Department of Education (2018), approximately 66,500 students between the ages of 6 and 21 were considered to have a hearing impairment during the 2016–2017 school year. These students represent 1.1 percent of all pupils with disabilities. At the same time, over 8,300 preschoolers were receiving a special education because of a hearing impairment. This figure represents 1.1 percent of all preschoolers with a disability.

Etiology of Hearing Impairment

Causes of hearing loss can be classified in several ways. For example, hearing losses may be congenital (occurring before birth) or acquired (occurring after birth). Hearing losses occurring around the time of birth are generally considered to be congenital, whether or not the loss was actually documented at that time. Further, hearing losses may be classified as genetic or nongenetic. Genetic or hereditary factors are one of the leading causes of hearing impairments in children. It has been estimated that in approximately one third of all persons with hearing loss greater than about 55 dB, the origin of the loss is hereditary (Toriello & Smith, 2013). **Adventitious (acquired) hearing losses** of this magnitude constitute roughly another third of all cases, and unknown factors are responsible for the remaining third. The etiology of hearing loss is an important variable in determining immediate and long-range educational strategies.

adventitious (acquired) hearing loss Hearing loss that is acquired after birth, not inherited.

Genetic/Hereditary Factors

Genetic causes are thought to account for more than 200 different types of deafness (Buethe et al., 2013). Approximately 50–60 percent of hearing loss in infants is the result of genetic factors (Centers for Disease Control and Prevention, 2019). Of the several known modes of genetic inheritance, three mechanisms are most important. **Autosomal dominant** inheritance is characterized by expression of a trait (for example, hearing loss) even if the gene for it is carried on only one chromosome of a matched pair. Waardenburg syndrome is an example of autosomal dominant hearing loss.

> **autosomal dominant** A genetic form of inheritance involving the non-sex-linked chromosomes in which the individual has one normal and one abnormal gene in a gene pair.

In **autosomal recessive** inheritance, both genes of a pair must carry the characteristic in order for it to be expressed. Usher syndrome is an example of autosomal recessive inheritance.

> **autosomal recessive** A genetic form of inheritance involving the non-sex-linked chromosomes in which both genes of a gene pair must be affected for the trait to be expressed.

The third major mechanism of genetic transmission is **X-linked** inheritance. In the X-linked recessive form of this transmission mode, the parents are apparently normal, and the altered gene is associated with the X chromosomes of the male offspring. Most X-linked recessive hearing losses are sensorineural (Toriello & Smith, 2013).

> **X-linked** A pattern of inheritance involving the X chromosome, one of an individual's two sex chromosomes.

Table 12.2 summarizes some of the disorders, both genetic and acquired, associated with hearing loss in children.

Infections

Many infectious agents that cause hearing loss are well documented; they can occur prenatally (before birth), at or around the time of birth (perinatally), or later in life (postnatally). During the mid-1960s, a rubella (German measles) outbreak caused an inordinate number of infants to be born with a hearing impairment. During that time span, approximately 10 percent of all congenital deafness was attributed to this disease, with half of these cases involving a severe sensorineural hearing loss. Fortunately, with the development of rubella vaccines, the incidence of this disease has dramatically decreased.

Common perinatal infections that may result in hearing impairment include cytomegalovirus (CMV), hepatitis B virus, and syphilis. Today, CMV infection is the leading viral cause of sensorineural hearing loss in children (Lomas, Andrews, & Shaw, 2017). Most children do not show clinical signs of the infection at birth but begin to demonstrate progressive evidence of it in the early years of life.

Measles and mumps viruses are examples of viral infections that can cause sensorineural hearing loss later in life, but for which there are now preventive vaccines. Hearing losses due to these viruses were all but completely eliminated, but failure to inoculate all children against these diseases has put them on the rise again and raised the risk of increased incidence of associated hearing loss.

Many nonviral infections can cause significant hearing loss. Bacterial meningitis can cause severe bilateral sensorineural hearing loss. Although viral meningitis can also cause hearing loss, most instances of hearing loss due to meningitis result from the bacterial form.

Otitis media is a very common condition in young children and is one of the leading causes of mild to moderate conductive hearing loss in children (American Speech-Language-Hearing Association, 2019a). Fluid accumulation in the middle ear resulting from this disorder typically causes

a 25- to 50-dB conductive hearing loss and, if not treated, can lead to sensorineural impairment. Otitis media is most often treated by administering antibiotics or, in some instances, through placement of pressure equalization tubes in the ears.

otitis media Infection of the middle ear space, causing conductive hearing loss.

Table 12.2 Disorders Associated With Hearing Loss in Children

Table 12.2 Disorders Associated With Hearing Loss in Children

Disorder	Description
Cytomegalovirus (CMV)	• Most common congenital viral infection causing hearing loss today, occurring in 1 in 1,000 live births • Contracted in utero or postnatally from the mother • Can result in sensorineural hearing loss as well as central nervous system, cardiac, optic, and growth abnormalities • Symptoms may not be apparent at birth, with onset about 18 months of age • Progresses rapidly during the first year
Down Syndrome	• Congenital chromosomal abnormality (trisomy 21) • Individuals frequently have low-set small ears, external canal stenosis, middle ear deformities, and facial nerve abnormalities • 30% of these children have sensorineural hearing loss • Most have poor Eustachian tube function, resulting in chronic middle ear disease with associated conductive hearing loss

Disorder	Description
Meningitis	• Neonatal infection, can be viral or bacterial • Most common cause of acquired sensorineural hearing loss • Hearing loss can range from mild to profound, and may be progressive • Symptoms may include headache, neck stiffness, photophobia, and suppurative otitis media
Ototoxicity	• Can be caused by a wide variety of strong antibiotics, chemotherapeutic agents, or loop diuretics • Can also result from exposure to various chemical agents in the environment • Characterized by a progressive high-frequency sensorineural hearing loss following such exposure
Usher Syndrome	• Autosomal recessive • Occurs in 6%–12% of congenitally deaf children, and 3 in 100,000 of the general population • Involves retinitis pigmentosa and progressive moderate to severe sensorineural hearing loss • Can vary greatly in age of onset, severity, and progression
Waardenburg Syndrome	• Autosomal dominant • 20% have white forelock, 99% have increased distance between the eyes, 45% have two differently colored eyes (typically one brown and one blue) • Depigmentation of the skin and eyebrows that meet over the bridge of

Disorder	Description
	the nose • 50% have mild to severe sensorineural hearing loss, which can be unilateral or bilateral and is progressive

Developmental Abnormalities

Some congenital causes of hearing loss involve abnormal development of outer or inner ear structure. **Atresia** (a narrowing or closure of the external ear canal and/or malformation of the middle ear) is a developmental disorder that affects the fetus early in pregnancy and results in malformation of the outer and/or middle ears. This frequently results in a conductive hearing loss that may or may not be treated successfully with surgical intervention.

atresia The absence or closure of the ear canal; can be congenital or acquired from injury or disease.

Environmental/Traumatic Factors

Low birth weight, and its associated conditions, and asphyxia (breathing difficulties) are causes of serious hearing loss that frequently occur at birth or shortly thereafter. Both factors can result in conditions that actually cause hearing loss by traumatizing the ear. Some prescription drugs (including antibiotic medications) are known to be toxic to the inner ear, and the resulting hearing loss can occur prenatally when drugs are administered to the mother or during medical treatment later in life. The resulting hearing loss is typically sensorineural in type and permanent once damage is done. Intense noise, head injuries involving fractures of the skull, and dramatic pressure changes in the middle ear are all examples of traumatic causes of damage to the ear and hearing loss.

Characteristics of Individuals With Hearing Impairments

Variations in etiology, onset, degree, and type of hearing loss, as well as family and educational situations, result in a widely diverse hearing-impaired population. However, children and adults with hearing disabilities characteristically experience significant issues with regard to social and intellectual development, speech and language, and educational achievement.

Intelligence

Over the past several years, reviews of the research on the intellectual characteristics of children with a hearing impairment have suggested that the distribution of intelligence or IQ scores for these individuals is similar to that of their hearing counterparts (Kuder, 2018). Findings suggest that intellectual development for people with a hearing impairment is more a function of language development than cognitive ability. Any difficulties in performance appear to be closely associated with speaking, reading, and writing the English language, but unrelated to level of intelligence (Antia, Kreimeyer, & Reed, 2010; Marschark & Wauters, 2011).

Speech and Language

Speech and language skills are the areas of development most severely affected for those with a hearing impairment, particularly for children who are born deaf. Children who are deaf typically have a very difficult time learning to use speech. Research on the speech skills of children with hearing impairments suggests that the effects of a hearing loss on English language development vary considerably (Berk, 2013). For individuals who experience mild to moderate hearing losses, the effect may be minimal. Even for those with a prelingual moderate loss, effective communication skills are possible because the voiced sounds of conversational speech remain audible. Although the person with this type of hearing loss cannot hear unvoiced sounds and distant speech, language delays can be reduced or prevented by early diagnosis, the use of advanced technologies such as a cochlear implant, and intervention. Thus, a vast majority of these individuals are able to use speech as the primary mode for English language acquisition.

Social and emotional development depend, in part, on the person's ability to communicate.

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For the individual with profound congenital deafness who does not have a cochlear implant, most loud speech is inaudible, even with the use of the

most sophisticated hearing aids. These individuals are unable to receive information through speech unless they have learned to speechread (lipread). Sounds produced by the individual who is deaf are often difficult to understand. Children who are deaf exhibit significant articulation, voice quality, and tone discrimination problems. Researchers have found that, even as early as 8 months of age, babies who are deaf appear to babble less than their hearing peers (Allen & Cowdery, 2015). This has been attributed to the fact that infants who are deaf do not experience the same auditory feedback from babbling as their hearing counterparts and therefore are not as motivated to continue the activity.

In 1990, the U.S. Food and Drug Administration approved **cochlear implants** for children between the ages of 2 and 17. Implants are now being used at an even earlier age. Research indicates that the optimal age to implant a youngster is 10–15 months. Studies suggest that children who receive a cochlear implant at a young age develop speech and language skills comparable to their hearing peers and will likely be successful in an inclusive classroom (Hall, 2014; National Institute on Deafness and Other Communication Disorders, 2019d).

cochlear implant A surgically implanted device that allows individuals who are deaf to hear environmental sounds and understand speech.

Approximately 40 percent of children born with a profound hearing loss receive a cochlear implant—a 25 percent gain in the last five years (National Institute on Deafness and Other Communication Disorders, 2019d).

Social Interactions

Social interactions rely on the ability to use communication skills. A hearing loss modifies a child's capacity to receive and process auditory stimuli; as a result, the quality and quantity of interactions with peers in social settings is often inhibited. Children who are deaf or hard of hearing interact less frequently with peers and engage in less social play than their hearing age-mates. Research also suggests that individuals with a hearing loss prefer to interact and engage with other children with a hearing impairment rather than with youngsters who hear (Antia, Kreimeyer, Metz, & Spolsky, 2011). This preference is most likely due to the lack of a shared communication system and its resulting frustrations (see Figure 12.3). This would seem to suggest the need to teach social interaction skills to children who are deaf as well as teaching sign language to their typical peers. This idea has particular merit for enhancing social integration as greater numbers of children who are deaf are the beneficiaries of early intervention, receiving cochlear implants (see page 396), and, subsequently, being educated alongside their hearing classmates in general education classrooms (Antia et al., 2011).

There is an increasing awareness and acceptance of children with disabilities by their peer group. This is recognized and promoted by toy manufacturers as more "awareness" products become available. Mattel, for instance, has assisted in awareness of hearing impairments through the introduction of the "Sign Language Barbie" doll available through Amazon.com.

As children with a hearing impairment grow and mature, their capacity for receiving and using language often hinders their overall social growth. Research on social skills in adolescents who are deaf suggests distinct differences from their hearing peers in such areas as maturity, knowledge of social mores and attitudes, and social interactions (Marschark, 2018). It is not unusual for young adults who are deaf to experience difficulty in establishing and maintaining social relationships due to their lack of

language skills and absence of socially appropriate behaviors, as well as a lack of awareness about hearing loss among their hearing peers (Luckner, Slike, & Johnson, 2012; Wolters, Knoors, Cillessen, & Verhoeven, 2014). Yet, smartphones and tablets combined with social media outlets like Facebook and Twitter now offer new opportunities for interaction between and among individuals who are hearing impaired as well as with their typical peers and others.

Educational Achievement

The educational achievement of students with hearing impairments is significantly below that of their hearing peers (Qi & Mitchell, 2012). Generally speaking, students who are deaf often encounter difficulty succeeding in educational environments that depend primarily on the spoken word and written language to transmit knowledge. Interestingly, contemporary research suggests higher academic achievement among students with a hearing loss who are educated in regular classrooms in comparison to students served in self-contained classrooms or those attending special schools. The apparent link between educational placement and academic achievement remains unclear. Differences may be due to curriculum and teacher expectations, or they may be a reflection of language and cognitive abilities, other disabilities, or even parental involvement (Marschark, Shaver, Nagle, & Newman, 2015).

Figure 12.3 “Deaf Donald” by Shel Silverstein

DEAF DONALD

Deaf Donald met Talkie Sue

But was all he could do.

And Sue said, "Donald, I sure do like you."

But was all he could do.

And Sue asked Donald, "Do you like me too?"

But was all he could do.

"Good-bye then, Donald, I'm leaving you."

But was all he did do.

And she left forever so she never knew

That means I love you.

Source: Copyright © 1981 EVIL EYE MUSIC, LLC. Used by permission of HarperCollins Publishers; "Deaf Donald" from A Light in the Attic by Shel Silverstein. © 1981, renewed 2002 Evil Eye, LLC. By permission of Edite Kroll Literary Agency Inc.

Low academic achievement is characteristic of many students who are deaf and hard of hearing (Marschark et al., 2015). Reading is the academic area most negatively affected for students with a hearing impairment. Any

hearing loss, whether mild or profound, appears to have detrimental effects on reading performance. Research suggests that pupils who are hearing impaired typically read at about a third- to fourth-grade level (Gleason & Ratner, 2017; Kuder, 2018); however, some individuals read at a tenth-grade level and above (Lomas et al., 2017). Performance of students with a hearing impairment on assessments of mathematical abilities is approximately two grade levels higher, but still below that of their hearing counterparts (Hrastinski & Wilbur, 2016; Pagliaro & Kritzer, 2013; Qi & Mitchell, 2012). The academic difficulties that many students with hearing impairments experience in this age of high-stakes assessment are a growing concern among educators.

Assessment of Individuals With Hearing Impairments

The primary aim of assessment of students with a hearing impairment is to develop a complete picture of their cognitive, communicative, behavioral, and social characteristics as well as their strengths and needs. This information is central to designing individualized instructional plans and other experiential activities that promote development and academic progress.

Cognitive Assessment

It is crucial that the intellectual assessment of students with hearing impairments use measures that do *not* rely primarily on verbal abilities as indicators of cognitive functioning. There are several nonverbal assessment options considered appropriate for individuals with hearing impairments. Two examples are the nonverbal portion of the recently revised Kaufman Assessment Battery for Children (Kaufman & Kaufman, 2018) and components of the Wechsler Intelligence Scale for Children (5th ed.) (Wechsler, 2014). Because of the nonverbal nature of these and similar instruments, concerns exist about the validity and reliability of these assessments when used with students who are deaf (Maller & Braden, 2011).

The two most widely used measures of academic achievement administered to children who have a hearing loss are the Stanford Achievement Test (SAT-10) (Pearson Assessment, 2008) and individual state achievement tests. The Stanford Achievement Test is the only national assessment routinely used to assess the academic performance of students who are deaf or hard of hearing (Qi & Mitchell, 2012). Fortunately, the scoring of this instrument incorporates norms based on individuals with hearing impairments.

Communication Assessment

The most serious negative aspect of a hearing impairment is its effect on language and speech development. Inadequate auditory stimulation during early development almost always leads to marked problems in language acquisition and speech production (Allen & Cowdery, 2015). Language assessment with this population should examine both receptive and expressive communication skills, including (1) form of language, (2) content of language, and (3) use of language. However, most language assessments do not assess all these areas. Professionals typically use several different assessment tools and techniques (such as language sampling) to accurately determine the individual's language abilities (Owens & Farinella, 2019).

Speech assessment with this population should include a battery of tools designed to ascertain the individual's articulation, pitch, loudness, quality, and rate. Analysis of these speech functions will provide a basis for designing speech therapy goals as part of the individualized education program (IEP) for the student with a hearing impairment.

Personal/Social/Behavioral Assessment

A number of measures of personal, social, and behavioral functioning are being used with individuals with hearing impairments. The assessment of personal/social characteristics with this population is very challenging given the language content of most of the measures in this area, which are designed to be completed by a rater in response to items in the domains of social adjustment, self-image, and emotional adjustment. Sattler and Hoge (2014) urge caution when inferring development in these areas. Individuals with a hearing impairment may respond atypically to a personality measure, not because they exhibit aberrant social/emotional development, but as a result of their linguistic difficulties.

Educational Considerations

One method of classifying hearing impairment is by degree. Hearing loss can range from mild to profound based on the level of intensity required (measured in decibels, or dB) at various frequencies (described in hertz, or Hz) to establish hearing threshold. This classification system is directly related to the individual's ability to hear and comprehend speech. Factors such as these, as well as whether the hearing loss is pre- or postlingual, clearly have significant educational implications (see Table 12.3).

Table 12.3 Impact of Hearing Loss on Students

Table 12.3 Impact of Hearing Loss on Students

Degree of Hearing Loss	Possible Psychosocial Impact of Hearing Loss	Effect of Hearing Loss on Speech and Language	Possible Educational Needs
Minimal or borderline: 16- to 25-dB loss	May be unaware of subtle conversational cues, causing student to be viewed as inappropriate or awkward. May miss portions of fast-paced peer interactions, which could begin to have an impact on socialization and self-concept.	May have difficulty hearing faint or distant speech. At 15 dB, student can miss up to 10% of speech when teacher is at a distance greater than 3 feet or when the classroom is noisy.	May benefit from a hearing aid, personal FM system, favorable seating, or sound field amplification if classroom is noisy. May need attention to vocabulary or speech, especially with recurrent otitis media history.

Degree of Hearing Loss	Possible Psychosocial Impact of Hearing Loss	Effect of Hearing Loss on Speech and Language	Possible Educational Needs
	May exhibit immature behavior. Pupil may be more fatigued than classmates because of greater listening effort.		Teacher in-service required.
Mild: 26- to 40-dB loss	Barriers beginning to build, with negative impact on self-esteem as student is accused of "hearing only when he or she wants to," "daydreaming," or "not paying attention." Begins to lose ability for selective hearing and has increasing difficulty suppressing	At 30 dB, may miss 25%–40% of speech. The degree of difficulty experienced will depend upon the noise level in the classroom, the distance from the teacher, and the configuration of the hearing loss. Without amplification, the pupil with a 35- to 40-dB loss may miss at least 50% of class discussions,	Will benefit from a hearing aid, personal FM system, or sound field system. Favorable seating and lighting required. Needs auditory skill building and attention to vocabulary and language development, as well as articulation and speechreading. Teacher in-service required.

Degree of Hearing Loss	Possible Psychosocial Impact of Hearing Loss	Effect of Hearing Loss on Speech and Language	Possible Educational Needs
	background noise, which makes the learning environment stressful. Is more fatigued than classmates because of required listening effort.	especially when voices are faint or speaker is not in line of vision. Will miss consonants, especially when a high-frequency hearing loss is present.	
Moderate: 41- to 55-dB loss	Communication is often significantly affected, and socialization with hearing peers becomes increasingly difficult. With full-time use of hearing aids or FM systems, student may be viewed as a less competent learner. Increasing impact on self-esteem.	Understands conversational speech at a distance of 3–5 feet (face-to-face) only if structure and vocabulary controlled. Without amplification, the amount of speech missed can be 50%–75% with a 40-dB loss and 80%–100% with a 50-dB loss. Is likely to	Amplification is essential (hearing aids and FM system). Special education support may be needed, especially for primary-grade students. Attention to oral language development, reading, and written language. Auditory skill

Degree of Hearing Loss	Possible Psychosocial Impact of Hearing Loss	Effect of Hearing Loss on Speech and Language	Possible Educational Needs
		have delayed or defective syntax, limited vocabulary, imperfect speech production, and atonal voice quality.	development and speech therapy is usually needed. Teacher in-service required.
Moderate to severe: 56- to 70-dB loss	Full-time use of hearing aids or FM systems may result in pupil being judged by peers and adults as a less competent learner. Poor self-concept and diminished social maturity may contribute to feelings of rejection.	Without amplification, conversation must be very loud to be understood. A 55-dB loss can cause student to miss up to 100% of oral information. Will have marked difficulty in situations requiring verbal communication in both one-to-one and group situations. Delayed language, syntax,	Full-time use of amplification is essential. Will need a resource teacher or special class placement depending on the magnitude of language delay. Will likely require assistance with language skills and academic subjects. In-service of general educators required.

Degree of Hearing Loss	Possible Psychosocial Impact of Hearing Loss	Effect of Hearing Loss on Speech and Language	Possible Educational Needs
		reduced speech intelligibility, and atonal voice quality are likely.	
Severe: 71- to 90-dB loss	Student may prefer other children with hearing impairments as friends. This may further isolate the individual from his or her classmates; however, these peer relationships may foster an improved self-concept and a sense of cultural identity.	Without amplification, may hear loud voices about 1 foot away. When amplified optimally, a student with hearing ability of 90 dB or better should be able to identify environmental sounds and detect all the sounds of speech. If loss is prelingual, oral language and speech may not develop spontaneously or will be severely delayed. If hearing loss is of	Emphasis placed on auditory language skills, speechreading, concept development, and speech. As loss approaches 80–90 dB, student may benefit from a total communication approach. Individual hearing aid or personal FM system is essential. Regular class placement is preferred, but teacher in-service is vital.

Degree of Hearing Loss	Possible Psychosocial Impact of Hearing Loss	Effect of Hearing Loss on Speech and Language	Possible Educational Needs
		recent onset, speech is likely to deteriorate with quality becoming atonal.	
Profound: 91-dB loss or greater	Depending on auditory/oral competence, peer use of sign language, parental attitude, and other factors, student may or may not increasingly prefer association with the Deaf culture.	Aware of vibrations more than tonal pattern. Will likely rely on vision rather than hearing as primary avenue for communication and learning. Detection of speech sounds dependent upon loss configuration and use of amplification. Speech and language will not develop spontaneously and are likely to deteriorate	May need special program with an emphasis on language skills and academic subjects along with comprehensive support services. Early use of amplification likely to help. May be a candidate for a cochlear implant. Requires continual appraisal of communication needs and learning modality. Part-

Degree of Hearing Loss	Possible Psychosocial Impact of Hearing Loss	Effect of Hearing Loss on Speech and Language	Possible Educational Needs
		rapidly if hearing loss is of recent onset.	time placement in general education classes as benefits student.

Source: Adapted from Supporting Success for Children with Hearing Loss, *Relationship of Hearing Loss to Listening and Learning*, Available at http://successforkidswithhearingloss.com/for-professionals/relationship-of-hearing-loss-to-listening-and-learning

Individuals with a mild hearing loss may encounter difficulty hearing in a noisy classroom setting or distinguishing distant sounds; however, their speech discrimination ability is often within normal limits. Appropriate accommodations for such a student may include preferential seating, possible use of a hearing aid or personal FM system, greater redundancy of instruction, and increased collaboration with parents to facilitate learning.

The individual with a moderate hearing loss—depending on type, degree, and age of onset—may experience significant delays in speech and language. Articulation deficits, reduced vocabulary, difficulty mastering various grammatical and syntactical concepts, and poor voice quality are common problems. Hearing aid use coupled with personal FM systems is necessary for such students, in addition to the intervention strategies cited previously.

A severe or profound hearing loss, again depending on the type, degree, and age of onset, may severely impede speech and language development. Individuals with severe to profound losses frequently have poor auditory discrimination, which often limits the effectiveness of conventional amplification devices. A team approach to remediation should be used, which involves substantial interaction with the child's audiologist to ensure accuracy of diagnostic information as well as appropriateness of

amplification. Students with this degree of hearing loss will need significant accommodation in the educational environment to be successful, including intense visual language reinforcement for the instruction of grammar and syntax. See the accompanying Strategies for Effective Teaching and Learning feature on teaching students with hearing impairments.

Strategies for Effective Teaching and Learning
Suggestions for Teaching Students With Hearing Impairments

Suggestion #1: Promote acceptance of your students. Your student will benefit from a classroom where he or she feels accepted and where modifications are made without undue attention.

- Welcome the student to your class. Your positive attitude will help other students accept him or her.
- Discuss your student's hearing loss with him or her; let him or her know you are willing to help.
- As appropriate, have your student, the audiologist, or another person explain the student's hearing loss to your entire class.
- Make modifications seem as natural as possible so the student is not singled out.
- Accept your student as an individual; be aware of his or her assets as well as his or her limitations.
- Encourage your student's special abilities or interests.

Suggestion #2: Be sure hearing aids and other amplification devices are used when recommended. This will enable your student to use his or her hearing maximally.

- Realize that hearing aids make sounds louder, but not necessarily clearer. Hearing aids don't make hearing normal.
- Be sure your student's hearing aids or other devices are checked daily to see that they are working properly.
- Encourage the student to care for his or her hearing aid(s) by putting it on, telling you when it is not functioning properly, and so forth.
- Be sure your student always has a spare battery at school.
- Know whom to contact if your student's device is not working properly.

Suggestion #3: Provide preferential seating. Appropriate seating will enhance your student's ability to hear and understand what is said in the classroom.

- Seat your student near where you typically teach. It will be helpful if your student is at one side of the classroom so he or she can easily turn and follow classroom dialogue.

- Seat your student where he or she can easily watch your face without straining to look straight up. Typically the second or third row is best.
- Seat your student away from noise sources, including hallways, radiators, pencil sharpeners, and so forth.
- Seat your student where light is on your face and not in your student's eyes.
- If there is a preferred ear, place it toward the classroom.
- Allow your student to move to other seats when necessary for demonstrations, classroom discussions, or other activities.

Suggestion #4: Increase visual information. Your student will use speechreading and other visual information to supplement what he or she hears.

- Remember that your student needs to see your face in order to speechread!
- Try to stay in one place while talking to the class so your student does not have to speechread a "moving target."
- Avoid talking with your face turned downward while reading.
- Keep the light on your face, not at your back. Avoid standing in front of windows where the glare will make it difficult to see your face.
- Use visual aids, such as pictures and diagrams, when possible.
- Demonstrate what you want the student to understand when possible. Use natural gestures, such as pointing to objects being discussed, to help clarify what you say.
- Use the board—write assignments, new vocabulary words, key words, and so forth on it.

Suggestion #5: Minimize classroom noise. Even a small amount of noise will make it very difficult for your student to hear and understand what is said.

- Seat your student away from noisy parts of your classroom.
- Wait until all your students are quiet before talking to them.

Suggestion #6: Modify teaching procedures. Modifications will allow your student to benefit from your instruction and will decrease the need for repetition.

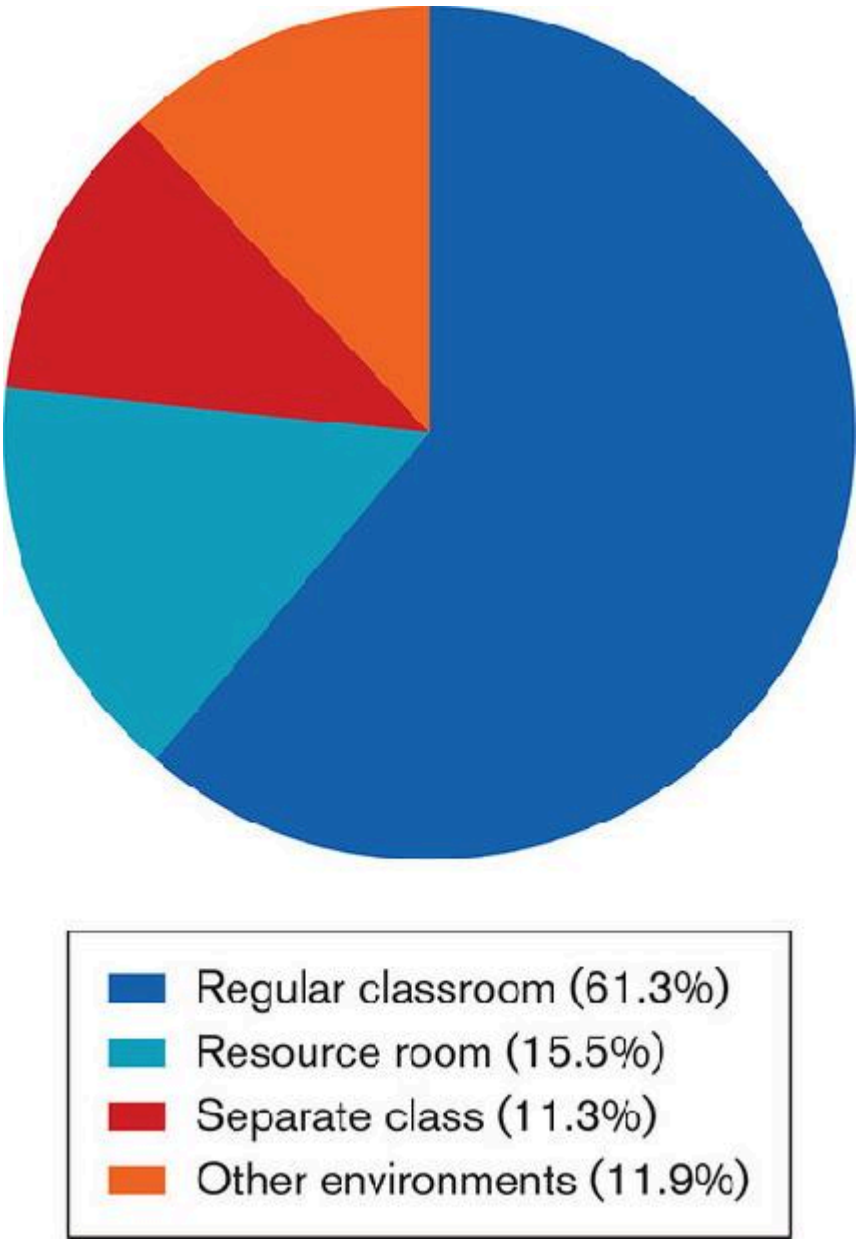
- Be sure your student is watching and listening when you are talking to him or her.
- Be sure your student understands what is said by having him or her repeat information or answer questions.
- Rephrase, rather than repeat, questions and instructions if your student has not understood them.
- Write key words, new words, new topics, and so forth on the board.
- Repeat or rephrase things said by other students during classroom discussions.
- Introduce new vocabulary to the student in advance. The speech–language pathologist or parents may be able to help with this.
- Use a "buddy" to alert your student to listen and to be sure your student has understood all information correctly.

Suggestion #7: Have realistic expectations. This will help your student succeed in your classroom.

- Remember that your student cannot understand everything all of the time, no matter how hard he or she tries. Encourage him or her to ask for repetition.
- Be patient when your student asks for repetition.
- Give breaks from listening when necessary. Your student may fatigue easily because he or she is straining to listen and understand.
- Expect your student to follow classroom routine. Do not spoil or pamper your student.
- Expect your student to accept the same responsibilities for considerate behavior, homework, and dependability as you require of other students in your classroom.
- Ask your student to repeat if you can't understand him or her. Your student's speech may be distorted because he or she does not hear sounds clearly. Work with the speech–language pathologist to help your student improve his or her speech as much as possible.

Source: Adapted from C. Johnson and J. Seaton, *Educational Audiology Handbook*, 2nd ed. (Clifton Park, NY: Delmar/Cengage Learning, 2012), pp. 195–196.

Figure 12.4 Educational Placement of School-Age Children With Hearing Impairments



Note: Figure represents percentage of enrollment of students ages 6–21with hearing impairments during the 2016–2017 school year. Other environments represent placement in a separate school, residential facility, homebound/hospital environment, correctional facilities, or parentally placed in private schools.

Information based on data from forty-nine states, the District of Columbia, Puerto Rico, Bureau of Indian Education schools, and outlying areas. Data for Wisconsin not included.

Source: U.S. Department of Education. (2018). *Fortieth annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2018.* Washington, DC: U.S. Government Printing Office.

Where Are Students With Hearing Impairments Served?

Figure 12.4 portrays the various educational environments providing a special education to children with hearing impairments. Approximately 90 percent of these students were enrolled in public schools during the 2016–2017 school year, with the majority of individuals served in the regular classroom. This represents a dramatic shift from the historical placement of pupils with hearing impairments in residential facilities. Before 1975, when PL 94–142 was enacted, about 80 percent of students with hearing impairments were served in special schools, typically state residential schools for the deaf (Marschark et al., 2015). This shift has caused great concern among adults who are deaf because residential schools have long been the foundation of the Deaf culture (Scheetz, 2012).

First Person: Mindy Believing in Yourself

My experience growing up as a person who is deaf has been enriching. I have a successful career thanks to supportive parents who always treated me like a typical child. During my difficult times, they supported me wholeheartedly. Some parents of children who are deaf tend to be overprotective, but not my parents. They encouraged me to make my own decisions. I do not think that I would be as successful as I am today without them.

After my parents found out that I was deaf, they enrolled me in a preschool where I learned cued speech. A new teacher arrived and told my parents that Signing Exact English (SEE) would be more useful and social than cued speech. My parents then enrolled in sign language classes so that they could communicate with me.

In elementary school, I was in a self-contained room with other students who were deaf and a teacher who used SEE. I loved that environment. At the time that I was about to enter the sixth grade, I was faced with a decision. Did I want to attend the Alabama School for the Deaf or an integrated middle school? I do not remember how I decided, but I chose the local middle school. I was in culture shock. My classroom was full of thirty hearing students. I was the only student who was deaf in the entire grade. (There were a few other students who were deaf, but they were in different grades.) I had to rely on my interpreter for everything, so I became shyer and less outgoing than I was in elementary

school. Many of my classmates learned to sign or fingerspell, but I still missed so much information vital to socialization. I remember walking through the hallways, and my interpreter would walk with me and tell me all kinds of gossip she heard. I was shocked; I had no idea what the students were talking about. As I entered high school, I became very unhappy. I noticed that high school students were more into cliques. I felt as though I did not belong.

At a summer camp for children who are deaf, a camp counselor told me about the Model Secondary School for the Deaf (MSSD) at Gallaudet University in Washington, DC. I was interested, so I mentioned it to my parents. Of course, they said I was too young to be so far away. Yet the thought of attending this school stayed with me. I wrote a letter to Gallaudet asking for information about the school. They sent me a colorful, fancy brochure, and I was impressed. I brought it up once again with my parents, but they shrugged it off. I filled out the application anyway and asked them to sign the papers just in case. I think my parents thought that I would change my mind if things got serious. When MSSD called my parents to come for an intake interview, they kept asking me if I really wanted to do this. I was determined as ever to go. We made the trip to MSSD, and I fell in love with the school immediately. Once again, however, I was in culture shock because I was not aware of the Deaf culture. The students made fun of my clothes, my makeup, and my use of SEE. I was bewildered by all of this. I eventually learned American Sign Language, which was the language of choice. A friend once charged me a penny every time I signed using SEE. I loved the social aspects of being at MSSD. Unlike my middle school, I was able to be involved in any activity that I wished. I was viewed as the “deaf” girl at my middle school, but at MSSD, I was looked at as “Usher syndrome” girl.

I am currently a counselor at a school for the deaf, where I have worked for the past eight years. I have had to face many obstacles as I moved to a town where I knew no one. I chose to face my challenges rather than staying home and believing that things would not work out for me. I still face challenges now as a person who is deaf-blind. I am not completely blind yet, but my vision is slowly deteriorating. I have learned how to use Grade 1 Braille, and I am currently learning Grade 2. I have also completed orientation and mobility training so that I can become somewhat independent in challenging areas such as heavy traffic. I have learned everything possible in order to be independent in case I lose my sight completely.

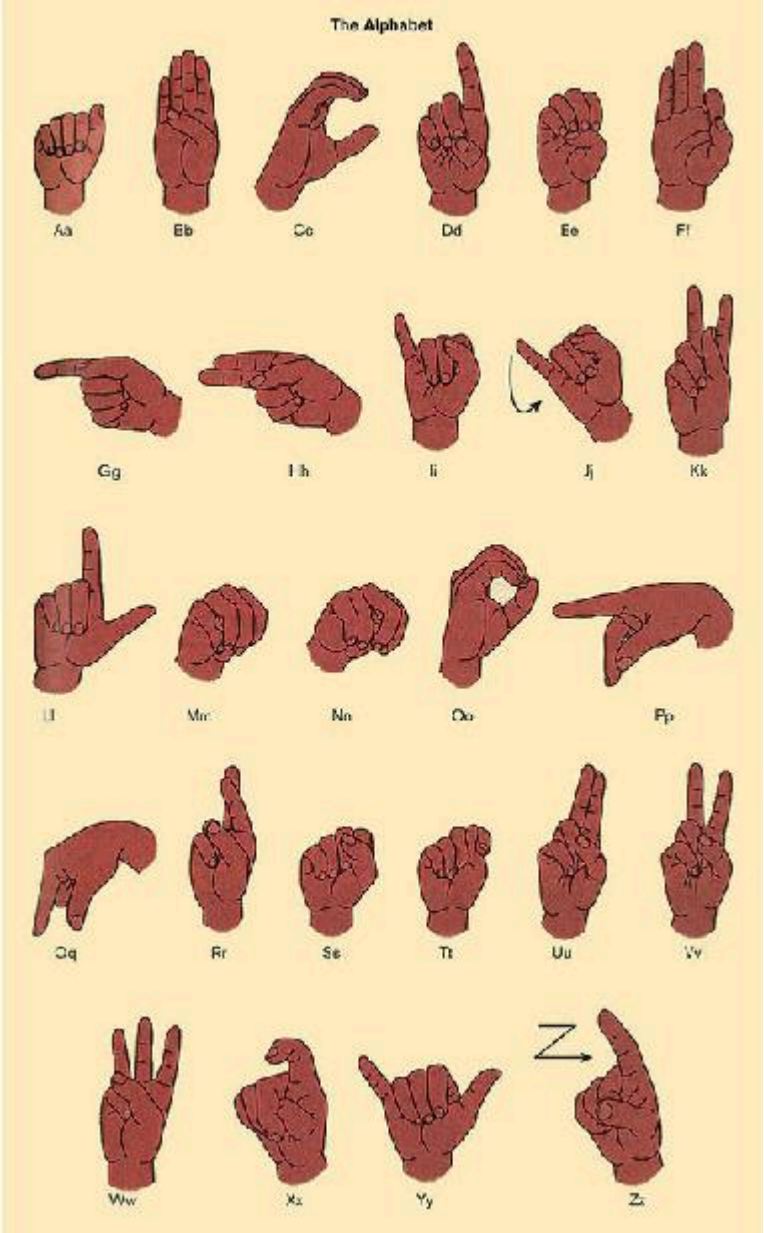
In the summer of 2006, I had a cochlear implant because of concerns about my safety in the future. I will need to depend upon environmental sounds if and when I lose my vision. I now enjoy hearing the birds sing and water running. When the audiologist turned on my cochlear implant, it was the strangest sensation. The first sounds I heard were my husband’s voice and that of the audiologist. Then I entered the bathroom. I did not realize that bathrooms were so noisy! Funny, I always thought that bathrooms were silent. After I got home, I noticed that flushing toilets even had a sound, so I was incredulous of that. I had never heard those sounds until I received my implant. It was one of the best decisions I ever made for myself.

I know I will face additional challenges as my vision deteriorates, but I have a wonderful support system consisting of my husband, family, and friends. I am confident that I will

be able to overcome whatever obstacles come my way.

—*Anonymous*

Figure 12.5 The Manual Alphabet



Source: G. Gustason and E. Zawolkow, *Signing Exact English* (Los Alamitos, CA: Modern Signs Press, 1993), pp. xxvi, 1.

Educational placement decisions may be influenced by such factors as the degree of loss, age of onset, mode of communication, presence of other disabilities, and available resources. (See the accompanying First Person feature on page 387.)

Instructional Interventions

Methods of Communication

Communication implies a transfer or exchange of knowledge, ideas, opinions, and feelings; it involves encoding and decoding messages. The basic foundation for communication is language, which is often defined as a system of rules governing sounds, words, meaning, and use. When a child is born with a hearing impairment, depending on the severity of the hearing problem, normal language acquisition is disrupted. Other means of communication are viable alternatives to spoken language. Sign language, in one of its multiple forms, and **fingerspelling** using the manual alphabet (see Figure 12.5) are examples of such alternatives. See Table 12.4 for a description of the three sign language systems that are most commonly used. Other methods of instruction include oral, auditory verbal, cued speech, total communication, and the Rochester Method (fingerspelling). For educators of the deaf and the Deaf culture, which method of communication to use is at the root of the current philosophical debate.

fingerspelling A form of manual communication; different positions or movements of the fingers indicate letters of the alphabet.

Within the educational placement options previously described, three different approaches to communication may be used: (1) a bilingual-bicultural (bi-bi) approach, (2) total communication, or (3) an auditory-oral approach. See Table 12.5 for a description of these approaches. The majority of public school programs using total communication employ a form of Signed English for the sign language component. Many residential programs and postsecondary programs for the deaf, however, endorse the bi-bi approach, which uses American Sign Language (ASL). There are few data suggesting that one instructional approach is significantly better than another (Swanwick & Marschark, 2010). It is important to remember, however, that only by recognizing the individual strengths and needs of

students with a hearing impairment are educators able to appropriately target their instruction (Marschark et al., 2015).

Table 12.4 Sign Language Systems

Table 12.4 Sign Language Systems

Sign System	Description	Advantages/Disadvantages
American Sign Language (ASL)	• A visual-gestural language considered the natural language of the deaf • Has a unique syntax system, not a word-by-word interpretation • System most frequently used by interpreters in public settings (churches, concerts, ceremonies, etc.)	• Unique syntax could make transition to English more challenging
Signing Exact English (SEE)	• Most like spoken English • Close match to ASL • Uses English word order • System most commonly used in public schools	• Can be understood by ASL users • English word order should make the transition to English less challenging
Signed English	• Uses ASL signs in English word order	• Even closer match to ASL but with the advantage of

Sign System	Description	Advantages/Disadvantages
	patterns	English word order

Source: Adapted from S. Kuder, *Teaching Students With Language and Communication Disabilities*, 5th ed. (New York, NY: Pearson Education, 2018), p. 176.

Table 12.5 Communication Approaches Used With Students With Hearing Impairments

Table 12.5 Communication Approaches Used With Students With Hearing Impairments

	Basic Position	Objective	Method of Communication
Bilingual-Bicultural (Bi-Bi)	Considers American Sign Language (ASL) to be the natural language of the Deaf culture and urges recognition of ASL as the primary language choice with English considered a second language	To provide a foundation in the use of ASL with its unique vocabulary and syntax rules; English as a second language (ESL) instruction provided for English vocabulary and syntax rules	ASL
Total Communication (TC)	Supports the belief that simultaneous use of multiple	To provide a multifaceted approach to communication	Combination of sign language (accepts the use of any of the

	Basic Position	Objective	Method of Communication
	communication techniques enhances an individual's ability to communicate, comprehend, and learn	to facilitate whichever method(s) work(s) best for each individual	sign language systems), fingerspelling, and speechreading
Auditory-Oral	Supports the belief that children with hearing impairments can develop listening/receptive language and oral language expression (English) skills; emphasizes use of residual hearing (the level of hearing an individual possesses), amplification (hearing aids, auditory training, etc.), and speech/language training	To facilitate the development of spoken (oral) English	Spoken (oral) English

Making Inclusion Work
Individuals With Hearing Impairments

My name is Catherine Davis, and I have been a teacher of the deaf and hard of hearing in the Blue Valley School District in Overland Park, Kansas, for four years. The first year, I worked as an itinerant deaf education teacher serving six schools. Then I was lucky enough to get to start a center-based resource room program in a brand-new elementary school. There I teach preschool through fifth-grade students whose individualized education program teams have decided that due to the educational impact of their hearing loss—often accompanied by additional disabilities such as attention deficit hyperactivity disorder (ADHD) and/or cognitive, motor, and/or vision impairments—these students are best served in this program rather than in their neighborhood school. My students spend the majority of their day in the general education classroom but come to me for academic support as well as auditory training, speechreading, and sign language instruction.

I grew up in a small Midwest town where there was not a lot of diversity. One boy in my high school was deaf, and I watched the other kids tease him, thinking he couldn't understand what they were saying because he couldn't hear them. He could. I decided to become his friend, learned to sign, and eventually started tutoring him. Thus, my love of teaching, combined with an interest in deafness and signing, began. After graduating from high school in 1992, I attended an interpreter-training program at the University of Kansas. Seeking to utilize my skills and have an adventure at the same time, I set out for Homer, Alaska, where I accepted a job interpreting for two Native Alaskan students. Miles from home, I encountered beauty and adventure, but also a challenge for which I was definitely unprepared. The two students with whom I worked had multiple disabilities and needed significant support. Unfortunately, the itinerant teacher was not always there to provide this support. Even though I loved Alaska and my job, this experience solidified my desire to teach, and I knew I needed more training. So after a year, I returned to Kansas. I completed a BS in elementary education and an MS in deaf education, and I am now in my final year of my PhD in special education with a focus on deaf education.

Inclusive Education Experience

The group of kids that I currently work with is truly representative of the type of caseload that a future teacher of the deaf can expect to have. My students are as different as can be. I have one first grader who has a cochlear implant and communicates solely through sign language and another first-grade student who is hard of hearing, wears hearing aids, and uses an FM system. She is oral but learning to sign. A second-grade student has multiple disabilities including ADHD, aphasia, and vision loss. She wears hearing aids and an FM system, and uses both verbal and sign language. The fifth grader I teach has a severe hearing loss, wears hearing aids, uses an FM system, and also has multiple disabilities including motor, cognitive, and vision impairments. Her predominant mode of communication is oral.

At the beginning of every year, I do an in-service for the entire staff in order to provide suggestions for working with students with a hearing loss. I also go into the general education classrooms and do lessons with all of the students explaining hearing loss, sign language, and Deaf culture. Often these lessons occur only with the classroom teacher or the special education teachers. However, I believe the whole school needs to be educated to really ensure that my students are fully included. I find that the more people know, the less apprehensive they are to interact with these kids. I let them try on hearing aids, listen to an FM system, watch a video on cochlear implants, learn some sign language, and even try to take a spelling test by reading lips to simulate what it might be like for students with a hearing loss.

Strategies for Inclusive Classrooms

Because of the diverse student needs, I am required to be versatile in my communication style. My philosophy on communication modality is not to have one! Instead, I go forward based on where the student is when he or she enters my program. At any given time, I use an eclectic combination of anything that works—sign, voice, gestures, drawing pictures, writing, acting—whatever it takes. In addition to working with the student at his or her level, it is critical to develop a good working relationship with the family.

One of the first things that I tell classroom teachers who are going to have a student who is deaf or hard of hearing in their classroom is that most accommodations are pretty simple. They shouldn't be scared! First of all, students with a hearing loss should be given priority seating so they will have a better opportunity to hear as well as have visual access to the teacher's mouth for lipreading or see their interpreter if they use one. I also tell teachers that anytime they can make their teaching more visual they should do so. This can be accomplished by writing new vocabulary on the board or accompanying it with a picture, or by using visual schedules. The students will have a much easier time following along with these visual cues added. If the child uses sign language, one of the best ways for the teacher and student to learn is to make it a part of the lesson for all students. I worked with a kindergarten teacher last year who really embraced this concept. She often invited me into her classroom to do lessons with her class. Eventually, she and the interpreter took over the teaching. Anytime her class learned a new sight word, they paired it with the sign. She said that using this extra modality really accelerated the child's learning. A preschool teacher I worked with two years ago used sign language so much, and also encouraged her kids to sign, that a visiting parent had to ask which one of the students was deaf!

Our school music teacher is another good example of someone with whom I collaborate often. The school put on a musical last year, and the whole student body learned to sign the songs. The parent of one of my students came to my room the next day to thank me; she was nearly in tears. She said that she never thought that she would see her child up on a stage singing and signing with everyone else, just like one of the other kids. Obviously, this kind of integration and collaboration benefits not only the student who is deaf, but everyone involved as well.

Another thing I do is to encourage teachers to be good advocates for their students. This often takes sustained determination to educate others about the child's needs. Although the many meetings and abundance of paperwork that this can require can seem overwhelming at times, the results are worth it. Teachers also need to teach the children with hearing loss to be good advocates for themselves. Fostering independence in students with disabilities is a component that is sometimes overlooked. In order for them to have a quality life within their educational setting, and also outside of school, students need to know how to request an interpreter, manage their audiological equipment, and educate people about their hearing loss.

The reality is that hearing loss is a low-incidence disability. In my experiences in rural settings, both in Kansas and in Alaska, I have seen how isolating it can be for the student to be the only one who is deaf or hard of hearing, or one of few, in his or her school. Therefore, it is especially important to me that I do everything I can to make sure the students I work with are included as much as possible. By being flexible and adaptable both in my teaching and in my communication style; by collaborating with staff, students, and parents; and by being a good advocate for my students and encouraging them to be good advocates for themselves, I find that my students are very successful in an inclusive setting.

—*Catherine Davis*

Teacher of the Deaf and Hard of Hearing

Liberty View Elementary School, Overland Park, Kansas

Audiologists

Audiologists have served students with hearing impairments in educational settings for many years and are often included as a member of the educational team. Using a collaborative approach, audiologists frequently provide support to general educators, speech–language pathologists, teachers of the hearing impaired, and other special educators as well as interpreters. The American Speech-Language-Hearing Association (2002) recommends in its *Guidelines for Audiology Service Provision in and for Schools* that there be at least one audiologist for every 10,000 students in a school system. Unfortunately, this recommendation has not been fulfilled. School districts currently employ fewer than 1,400 audiologists (Adams, 2014).

Interpreters

When an **interpreter** is used, three people are involved in the communication experience: the interpreter, the person who is deaf or hard of hearing, and the hearing person. The primary role of the educational interpreter is to relay to the student anything that is said in class by employing communication processes such as repetition, sign language, fingerspelling, body language, and verbal expressions. Many sign language systems (such as ASL, Signed English, or Signing Exact English) may be

used, depending on the preferred communication mode or need of the individual with a hearing impairment. An **oral interpreter** may be used for cochlear implant users or individuals with a great deal of residual hearing. Oral interpreters use clear enunciation, slightly slower speech, and expressive mouth and facial movements to improve the visibility of the spoken message. In conjunction with the communication process, an interpreter may also use **transliteration**. For example, the interpreter may change the exact wording of the hearing person's communication in order to help the individual with a hearing impairment to better understand the context of the message. However, the interpreter is never a contributing member in the communication exchange.

interpreter A professional who signs, gestures, and/or fingerspells a speaker's message as it is spoken to enable individuals with hearing impairments to understand spoken language.

oral interpreter A professional who silently repeats a speaker's message as it is spoken so that a person who is hearing impaired can lipread the message.

transliteration Altering an interpreted message to facilitate understanding by a person who is hearing impaired.

Educational interpreters play diverse roles at all grade levels. They may assist students in the classroom, tutor individual students, assist regular and special educators in classroom activities, or interpret lectures. As increasing numbers of individuals with a hearing impairment choose to attend public schools, the demand for interpreters is growing. A critical shortage of qualified interpreters exists in many educational settings, especially in rural areas. There is also a nationwide shortage of qualified interpreter preparation programs.

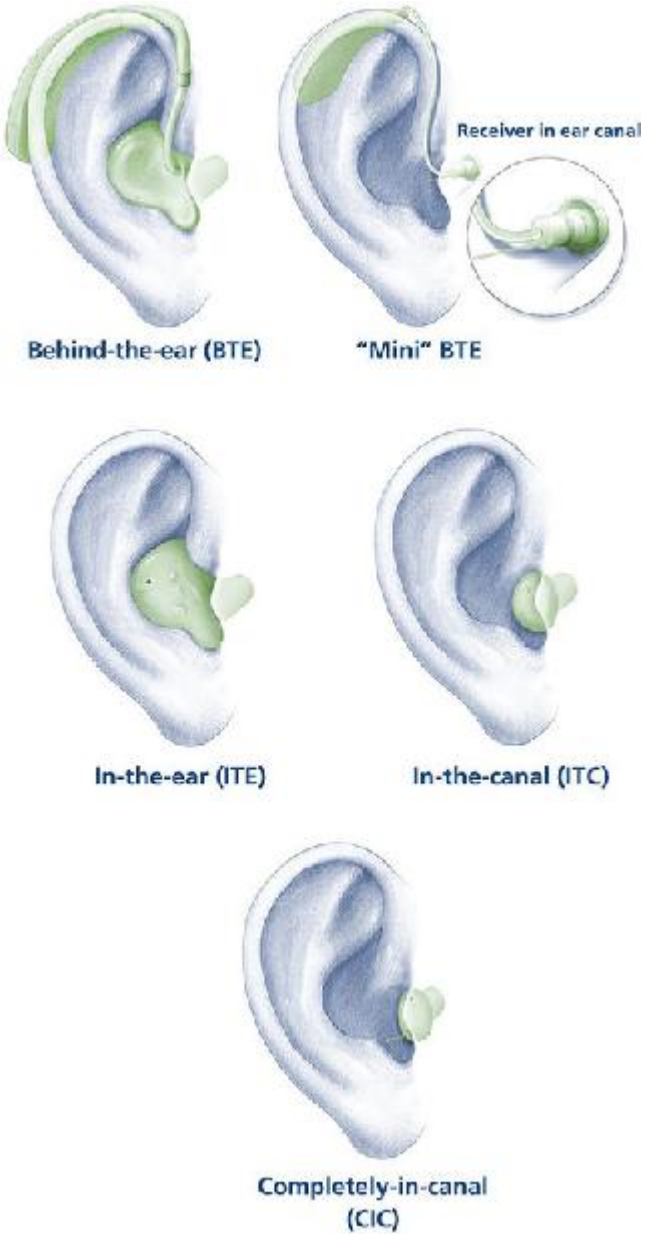
Technology and Individuals With Hearing Impairments

Modern technology is an important component in the lives of many individuals with disabilities. Today's technological advances are especially evident in the area of hearing impairment. Sophisticated hearing aids, computers, alerting devices, cochlear implants, captioned media, and adaptive equipment are only a few of the items that have revolutionized the education of children with hearing impairments. See the accompanying Spotlight on Technology feature on page 394 for additional technological innovations that support individuals with hearing impairments.

Hearing Aids and Auditory Training Devices

There are several different types of hearing aids including in-the-ear and behind-the-ear aids (see Figure 12.6). Hearing aids are individually prescribed based on an audiologist's determination of the degree and nature of hearing impairment, along with the individual's age, additional disabilities or physical limitations, speech and language skills, cost considerations, and environment in which the hearing aid will be used. The audiologist determines how much amplification—the difference between the level of acoustical input at the microphone and the level of acoustical output at the speaker—the hearing instrument will provide. All hearing aids contain miniaturized electronic components consisting of a microphone, an amplifier, a receiver, and a power source. The audiologist also determines the frequency response of the aid—that is, the range of frequencies amplified (usually between 250 Hz and 6,000 Hz). In the past, hearing aids simply amplified all incoming sounds equally. Recent technological advances have allowed for differential amplification so that hearing aid output depends somewhat on the nature of the incoming sound. In other words, the hearing aid does not respond to all incoming sounds in the same way. Programmable hearing aids can be linked to a computer and adjusted by the audiologist. Sound outputs at certain frequencies, or at various levels of loudness, can be varied during programming sessions. Today's increasingly sophisticated programmable hearing aids are individually tailored to closely match the configuration of an individual's hearing loss. The accompanying Insights feature (page 395) provides a basic hearing aid checklist for the classroom teacher.

Figure 12.6 Styles of Hearing Aids



Source: From the National Institute on Deafness and Other Communication Disorders (National Institutes of Health).

Spotlight on Technology

Technological advancements, some of which were originally intended for different applications, have made information more available to students with hearing impairments. This includes real-time captioning, interpreting, and translating, which can be done by humans or technology.

Technology	Description
UNI from MotionSavvy	• Real-time translator, which takes sign language and converts it into a grammatically correct voice output of English • Translates spoken English into text to appear on a screen
SignALL	• Translates American Sign Language into written text on a screen • Translates spoken English into text to appear on a screen
Communication Access Realtime Translation (CART)	• Paid service that records instruction in a classroom in real time, to appear on a student's computer screen
YouTube captioning	• Allows users to add closed-captioning to their YouTube video as well as to watch videos with captioning

Although current hearing aid technology offers substantial improvement over previously available personal amplification, such devices will not necessarily meet all of the listening needs of an individual with a significant degree of hearing loss. **Assistive listening devices** may be used to enhance the performance of people with hearing impairment in a variety of situations. Children with hearing impairments often use **auditory trainers**, particularly **FM systems**, in their educational settings. These amplification systems are easy to use and are often more effective than hearing aids in managing the acoustical problems inherent in most classrooms. Speech understanding in the presence of background noise presents a significant dilemma for pupils with hearing impairments, particularly those wearing

some type of hearing aid. The signal-to-noise ratio, or loudness level of the desired sound source relative to unwanted noise, can be greatly enhanced by these systems. An FM system consists of a small transmitter with a tiny directional microphone worn by the teacher. A receiver can be worn separately by the student or in conjunction with his or her personal hearing aid. When using the FM system, the teacher's voice is heard directly and clearly regardless of his or her location in the classroom.

assistive listening devices Devices such as FM or sound field systems that improve the clarity of what is heard by an individual with hearing impairment by reducing background noise levels.

auditory trainer A type of amplification system used by children with hearing impairments in place of their hearing aids in educational settings.

FM system A wireless system that allows the transmission of a signal from the teacher wearing a microphone to the student wearing a receiver, increasing the volume of the teacher's voice over the volume level of classroom noise.

Children who are hearing impaired frequently use auditory trainers in the classroom.

© David Young-Wolff/PhotoEdit

Sound field systems can also enhance signal-to-noise ratio in the classroom. With this type of system, the teacher wears a lavalier microphone, and his or her voice is transmitted to various speakers

strategically placed about the room, or on the desktop for a particular student. These systems have proven particularly successful for individuals with minimal hearing loss, recurrent otitis media, cochlear implants, and a variety of other communication problems.

sound field system A system to assist students with hearing impairments in which the teacher wears a microphone that transmits a signal to a speaker strategically placed in the classroom rather than to a body-worn receiver.

Insights
How to Check a Hearing Aid

For children who use hearing aids, it is helpful to check the aids on a regular basis to ensure functioning. With minimum effort and a few minutes a day, teachers can help students check their hearing aids. Depending on the age of the child, students should take appropriate responsibility for the checking process.

Know Background Information

Basic information on the child’s hearing aid should be supplied by the audiologist or parents. Things to know about the aid include the following:

- Brand and model
- Recommended volume
- Internal settings
- Battery type

Check Hearing Aid Functions

Two inexpensive pieces of equipment—a hearing aid stethoscope and a battery tester—should be kept in the classroom and used to check hearing aids. Stethoscopes can usually be purchased through local hearing aid dealers. The stethoscope is used to check the quality of sound provided by the hearing aid. Listen for the following problems:

- Sound cuts on/off when the volume control is changed.
- Sound cuts on/off when the cord of an FM system is jiggled.
- Voice quality sounds distorted.

Battery testers are also available through hearing aid dealers or local commercial outlets. Depending on their quality and sophistication, testers are usually inexpensive. Use them according to directions to test hearing aid batteries. Only batteries working at full power will provide good hearing aid function.

Check Student Function With Hearing Aid

Described as follows is a quick, efficient check of how a child functions with a hearing aid. In addition to including if the hearing aid is working, this check can detect other possible problems a child may be experiencing such as a change in hearing levels related to outer or middle ear problems or a change in sensorineural hearing levels.

- Have the student sit facing you at a distance of about three feet, wearing the aid.
- Cover your mouth with an index card or piece of paper.
- Individually present each of the following five sounds: *ah*, *oo*, *ee*, *sh*, *s*. (These sounds represent the variety of the frequencies present in speech.)
- Have the student raise one hand or place a block into a container when the sound becomes audible.
- Set a baseline for each student, consisting of the sounds the student can perceive from three feet away, using a functioning hearing aid with a good battery. Not all students will hear all five sounds.
- Check each student's awareness of the five sounds on a regular basis. If hearing deviates from the student's baseline, check the aid more carefully.
- If a thorough check of the aid confirms that it is working well, poor performance on the five-sound test may indicate that a problem such as fluid in the middle ear is impairing the student's ability to hear at baseline levels. Notify the student's family if you strongly suspect that middle ear fluid is causing problems.

Troubleshoot Hearing Aid Problems

When a student seems to be having difficulty with a hearing aid, some of the following signs may help you find or eliminate the problem. If you uncover any hearing aid problems that cannot be resolved in the classroom, let the student's family know so the aid can be repaired or replaced as necessary.

Problem: No Sound

- Try a new battery.
- Make sure the battery is properly placed. Match the positive (+) on the battery to the positive (+) in the battery compartment.
- The battery compartment may be corroded. Clean it gently with a pencil eraser, then try a new battery.
- Make sure the hearing aid is set at ON, not at T for telephone.
- Look for wax or dirt in the earmold. Clean the mold with a pipe cleaner, then with warm soapy water. Dry it completely before reattaching it to the aid. Do not use alcohol.
- Look for twists in the tubing.

Problem: Squealing/Feedback

- Check to see if the earmold fits properly. If it looks too small, inform the student's parent or audiologist.
- Check the volume and turn it down to the appropriate setting. If it still squeals, the mold is too small or there is an internal problem in the aid.
- Check for loose tubing, or for cracks in the tubing attached to the aid or mold.

Source: Adapted from *About Hearing Aids*. Available at http://www3.gallaudet.edu/clerc-center/info-to-go/hearing-aids/about-hearing-aids.html

Also see *Hearing Aid Listening Check*, National Center for Hearing Assessment and Management, Utah State University. Available at www.infanthearing.org/videos/featured/docs/Hearing%20Aid%20Listening%20Check.pdf

Computers

Computers have many applications for educating children with hearing impairments. Computer-assisted instructional programs offer students with hearing impairments the opportunity to individualize the learning process at their own comfort level and pace, placing them in control of the interactive process with a variety of subjects. Special programs are also available on CD-ROM as well as on the internet for speech drill, auditory training, sign language instruction, speechreading, and supplemental reading and language instruction. Computers can now synthesize speech from keyboard input as well as transcribe speech onto a printed display screen. This technology makes it easier for students with hearing impairments and limited speechreading skills to understand verbal communications and to communicate verbally with others.

Alerting Devices

Many everyday devices have been adapted to meet the needs of persons with hearing impairments. Wristwatches can be equipped with vibratory devices rather than auditory alarms. Doorbells, fire alarms, and alarm clocks are available with vibratory mechanisms or flashing lights in addition to auditory signals. Flashing-light clocks are useful for those individuals who sleep lightly. For heavy sleepers or individuals who are deaf-blind, flashing lamps (eighty-five flashes per minute) or special pillow vibrators are available. For parents who are hearing impaired, alerting devices are available with lights that flash in response to a baby’s cry. Certain high-frequency alarms, such as a smoke detector, can be converted to a lower frequency, ensuring that the signal falls within the frequency range where there is sufficient residual hearing for detection.

Telecommunication Devices

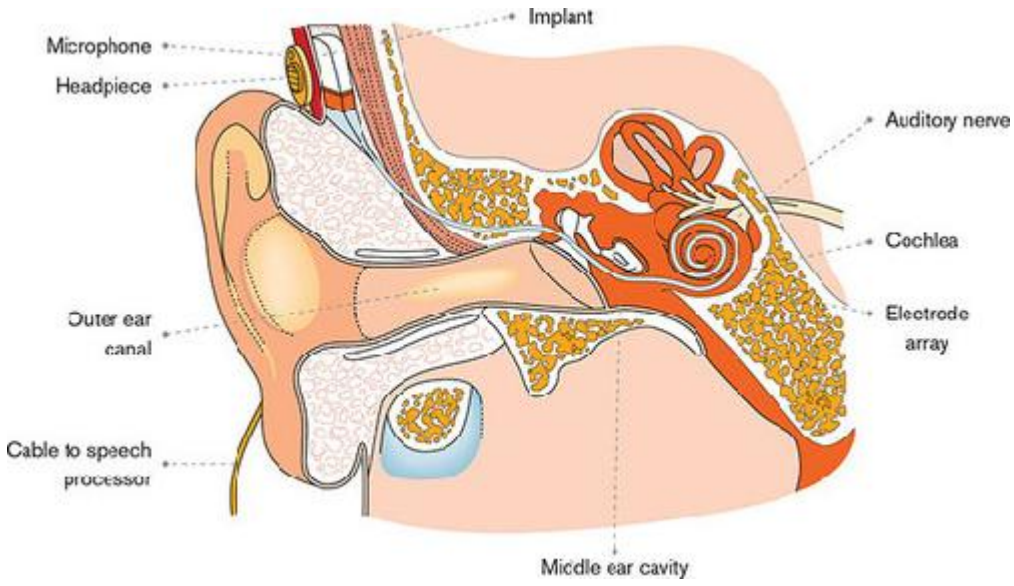
Individuals with severe hearing impairments can communicate by telephone with a **telecommunication device for the deaf (TDD)**. A TDD is a small keyboard with an electronic display screen and modem attached. The telephone receiver is placed in the modem, and messages typed onto a keyboard are carried as different sets of tones on the telephone line to the receiver's telephone, which must be linked to a TDD in order to complete the call. Today, however, many individuals with hearing impairments rely on text messaging and other social media outlets as their primary means of communicating and sharing socially rich files. Social media provides immediate connections to others as well as group communication with ease.

telecommunication device for the deaf (TDD) An instrument for sending typewritten messages over telephone lines to be received by a person who is deaf or severely hearing impaired as a printed message. Sometimes called TT, TTY, or TTD.

Cochlear Implants

Many persons have sensorineural hearing loss so severe that they may not derive significant benefit from conventional amplification devices. The cochlear implant (see Figure 12.7) is a surgically implanted device designed to make sounds audible for these individuals. Although somewhat controversial in the past, particularly within the Deaf culture community, large numbers of children and adults have been implanted, with favorable results. Approximately 38,000 children and 58,000 adults in the United States have received cochlear implants (National Institute on Deafness and Other Communication Disorders, 2019b). Research indicates that cochlear implant users, particularly adventitiously deaf adults and children implanted at an early age, perform significantly better on a variety of tasks than most hearing aid users with a similar degree of hearing loss. When comparing the level of speech intelligibility between children with cochlear implants and children with normal hearing, distinct differences have been noted. By age 4, children with normal hearing develop adult- or near-adult-like speech intelligibility. Children with cochlear implants do not develop a similar ceiling of competence at such a rapid rate. Instead, they have a continuum of improvement that correlates to increased age and length of use of their implant. Yet, cochlear implants have revolutionized the management of individuals with severe to profound sensorineural hearing loss (Hall, 2014).

Figure 12.7 Cochlear Implant



Source: Based on drawing from Advanced Bionics Corporation, Valencia, CA.

A cochlear implant is not a hearing aid but rather a tiny array of electrodes that is implanted surgically in the inner ear (cochlea) and is attached to a receiver-stimulator implanted just behind the ear at the base of the skull. The individual wears a microphone and a small computer for speech processing, connected by electrical wiring. The transmitter is held in place over the implant site using a special magnet. Although many implant users wear larger processors similar in appearance to a body-type hearing aid, newer devices are a great deal smaller, fitting completely behind the ear, and are generally more cosmetically appealing. Continuous advancements in technology present ever-changing improvements in the options and results available to those opting for implantation (Owens & Farinella, 2019).

A number of factors affect the probability of success with implantation, including degree of hearing loss, age of onset, age at implantation, previous experiences with amplification, family support, and educational methodology. The earlier the child is implanted, the better the prognosis for success—especially for acquisition of intelligible speech (National Institute on Deafness and Other Communication Disorders, 2019b; Owens &

Farinella, 2019). Implantation of children older than age 6 has shown some success, but improvement may be more limited.

The responsibility of public schools to children with cochlear implants was addressed in the final IDEA 2004 regulations. Because a cochlear implant is surgically implanted, it is not considered to be an assistive technology device. Therefore, schools are *not* required to pay for this appliance. The student, however, is still entitled to receive related services as specified in his or her IEP. This can include speech–language as well as audiology services (American Speech-Language-Hearing Association, 2019c).

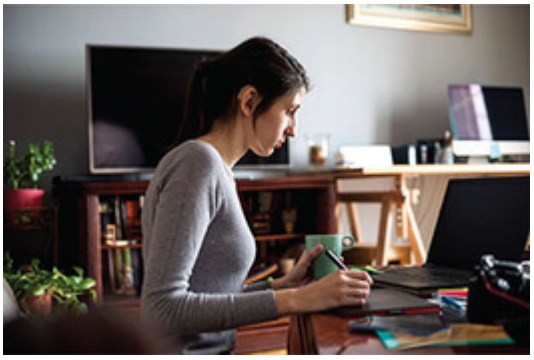
Because cochlear implantation provides such an increase in residual hearing for the child who is deaf, educational management strategies are more likely to mirror those provided for children with a mild to moderate degree of loss. For example, children who are profoundly deaf often simply cannot hear many high-frequency consonants, even with technologically advanced amplification. Teaching such students to produce these sounds correctly in speech is extremely difficult. Children using cochlear implants generally have much better high-frequency hearing ability; as a consequence, encouraging correct production of high-frequency consonants becomes much easier. Although these children still have limitations with regard to complex grammatical structure, sophisticated vocabulary, and certain auditory skills, if implantation is done early and appropriate rehabilitative and educational supports are in place, linguistic and educational progress is generally more rapid for children using cochlear implants.

Services for Young Children With Hearing Impairments

Early intervention for the child with a hearing impairment is grounded in the same basic concepts as early intervention and early childhood special education programs for youngsters with other disabilities. Screening programs designed to detect hearing loss in school-age populations have existed for years. However, for children born with a hearing impairment, identification and early intervention is absolutely critical. There is an obvious relationship between expressive and receptive communication skills and the hearing mechanism that facilitates such skills, which begin long before a child's first words are ever spoken. Because more children are being identified as hearing impaired at an earlier age, the emphasis of many early intervention programs has changed in order to meet the needs of younger children with hearing impairments, many of whom will receive cochlear implants.

Failure to identify infants with a hearing impairment has a significant negative effect on the development of speech and language, educational achievement, and social and emotional development. Early intervention, however, can minimize, and in some instances even eliminate, these adverse consequences. It is recommended that all newborns be screened for hearing loss, preferably prior to hospital discharge (National Center for Hearing Assessment and Management, 2019a). Every state and territory in the United States now offers early hearing and detection programs. One of the goals of this program is to detect a hearing loss as soon as possible and to provide early intervention services and supports to the child and his or her family (National Center for Hearing Assessment and Management, 2019b).

Adolescence can be a stressful time for individuals with a hearing impairment.



iStock.com/Sladic

The benefits of early intervention cannot be underestimated. Research suggests that infants diagnosed with a hearing loss who receive early intervention and supports in the first six months of life develop significantly better speech and language skills than infants who are identified after six months of age (Martin-Prudent, Lartz, Borders, & Meehan, 2016; Owens & Farinella, 2019).

Early intervention programs provide families with information on language development, communication skills, the use of residual hearing, amplification, self-help skills, and the social/emotional development of a youngster with a hearing loss. These programs place a strong emphasis on family involvement. Meeting the needs of each individual family requires customized intervention strategies.

The vast majority (90%–95%) of infants with hearing impairments have parents with normal hearing (Owens & Farinella, 2019). Whether a child with a hearing loss is born to deaf or hearing parents may influence social, educational, and cultural issues. For example, many hearing parents of children who are severely hearing impaired probably do not know or use sign language. They may be unaware of cultural issues related to the Deaf community, and how such issues might relate to their own child's education options. Some research indicates that parents who are deaf are more likely to view children with hearing impairments in a positive way, which may result in greater normalization of the parent–child relationship (Katz & Schery, 2006). Allen and Cowdery (2015) suggest that early intervention

programs focus on helping the child with a hearing impairment develop within the structure of his or her family, just as a child with normal hearing develops within this context.

Strategies for Effective Teaching and Learning
Promoting Language Development in Young Children With Hearing Impairments

- **Speak using an ordinary tone/volume.** Make sure the student's attention is focused on the speaker. Talk naturally and clearly and use simple phrases or simple but complete sentences, depending on the pupil's language level. Do not shout or exaggerate words or slow down your speech unnaturally. Highlighting lips with lipstick can assist a young child in following speech. A mustache or long hair obscuring the face can cause loss of visual information.
- **Clarify idioms.** Explain idioms in context (for example, explain "It's raining cats and dogs" when you have used the expression after dashing inside during a cloudburst). This prevents misunderstandings and enriches the child's language.
- **Check with the student to ensure comprehension.** Sometimes saying "Tell me what I just said" provides information about how much a child understands. However, many children with a hearing loss have difficulty articulating their responses. Therefore, you may need to observe the child's actions for a short period to check for understanding. A perplexed look or doing nothing may indicate lack of understanding, and you will need to find additional, preferably visual, methods for getting the message across.
- **Institute a buddy system to facilitate a child's understanding of directions and curriculum content.** Many times children understand another child better than they do an adult, so have a child's buddy explain the information again after you have finished. Furthermore, attentive peer modeling of both speech and behavior is an excellent resource for the child with hearing deficits.
- **Show real-life pictures when reading or talking about a topic, and use simple signs, point, or have an example of the object you're explaining.** Pupils with a hearing loss need visual information to learn. Acting out experience-based language lessons or stories is helpful. Using environmental labels around the classroom can start such children on the road to learning language through print.
- **Provide language boards or books for children who have difficulty producing intelligible speech or manual signs.** Try providing a flannel board with pictures, words, or other graphic symbols to help communicate information such as available interest centers or answers to routine questions. The child can point to the board to indicate a response or choice. Preteach key vocabulary words from a story that will be read to the class, or send the book home with the child beforehand so that the words can be introduced by the family (and reinforced afterward).

Source: Adapted from L. Katz & T. Schery, "Including Children With Hearing Loss in Early Childhood Programs," *Young Children, 61*(1), 2006, p. 94.

Transition and Individuals With Hearing Impairments

The process of transition, enabling the person with a hearing impairment to make a successful change from one environment to another, requires systematic planning and evaluation. IDEA mandates individualized transition plans for students with disabilities age 16 and older. It also requires periodic revisions in order to remain current and sensitive to the needs of these individuals and their families. As we noted previously, many students with severe to profound hearing impairments lag behind their peers in personal, social, and behavioral maturity, which affects the structure and outcome of transition planning.

Stress is often associated with change, and transition can be especially difficult for the family as well as the pupil. Families learning to adjust to the new challenges of having an adolescent or a young adult who is deaf or hard of hearing are often assisted by teachers, counselors, or other specialists. Family life plays a key role in the transition process for adolescents who are deaf. Many times, an audiologist, rehabilitation specialist, speech–language pathologist, or special education teacher is able to assist the student and his or her family in making transition decisions about postsecondary educational programs or employment opportunities. The Laurent Clerc National Deaf Education Center, located at Gallaudet University, provides excellent information families and teachers can use to promote transition and independence.

Legislation facilitating transition as a national priority for the hearing impaired began with the passage of PL 89–36 in 1968, which established the National Technical Institute for the Deaf (NTID) at the Rochester Institute of Technology, and the enactment of Section 504 of the Rehabilitation Act of 1973 (PL 93–112), which mandated that institutions of higher education provide accessible facilities and support services for individuals with disabilities. In addition to funding Gallaudet University and the NTID, Congress funds regional postsecondary education programs

for the deaf. Programs at California State University at Northridge and the University of Tennessee Center on Deafness are two examples of this activity.

The transition for many individuals with a hearing impairment also involves personal, social, and community adjustments. The new experiences are intensified not only by communication difficulties but also by the diverse literacy skills needed in the new environment. Transition to vocational training and/or employment can be eased by career counseling and coursework centered on vocational skills and independent living, as identified in the student's individualized transition plan. For pupils who anticipate going to college, preparatory experiences typically involve strategies for achieving academic success as well as navigating social situations. Additionally, instruction in self-advocacy and managing financial affairs are equally important for young adults with a hearing impairment.

Interpreters provide a vital service to college students with hearing impairments.

RJ Sangosti/Denver Post/Getty Images

Services for Adults With Hearing Impairments

Adult support services often provide a vital link between the hearing impaired and the hearing world. These diverse services may be used to enhance public knowledge regarding deafness, facilitate communication, or aid in the transfer of information.

Two basic types of mandated services are offered statewide for adults who are deaf or hard of hearing. The first is a state commission or office on deafness, whose services include advocacy, information gathering and dissemination, referral to appropriate agencies, interpreting services, and job placement and development. The second type of service is offered through each state's vocational rehabilitation service. A coordinator of rehabilitation services for the deaf and hard of hearing provides vocational evaluation, job placement, and counseling, often in conjunction with the transition plan while the student is still in high school. State rehabilitation offices can also help students preparing to enter postsecondary academic environments. Under the Americans with Disabilities Act, colleges and universities are required to provide qualified sign language interpreters and other auxiliary aids needed to ensure effective communication opportunities for students who are deaf or hard of hearing, even if these services are not provided by the state vocational rehabilitation system.

For 140 years, the National Association of the Deaf (NAD), the nation's premier civil rights organization for people who are deaf or hard of hearing, has been championing the rights of individuals with hearing impairments. NAD (2019) provides a wide range advocacy at the state and federal levels on issues of importance to individuals with hearing loss, including the preservation of American Sign Language.

Another significant organization promoting the integration of the hearing-impaired population into mainstream society is the Alexander Graham Bell Association for the Deaf and Hard of Hearing. The philosophy of AG Bell is based on the improvement of oral speech communication. This

association serves as a clearinghouse of materials and information concerning oral teaching methods, technology, and related topics.

Family Issues

Family dynamics can be severely disrupted when a child is born with a significant hearing impairment. Parental, sibling, and grandparent roles are often dramatically altered by such an event. Because the effects of hearing impairment are so pervasive, particularly with regard to communication, accepting and “normalizing” the child’s disability can be quite difficult. The expected or fantasized child does not arrive, and the family experiences an initial state of emotional shock and disbelief. The level of impact on the family may vary, but for most families, such an event can create a crisis atmosphere of considerable magnitude.

Family Reaction

As we mentioned, approximately 90–95 percent of all children with hearing impairments have hearing parents. After the initial emotional states of shock and disbelief, stresses on the family can increase as individual members come to understand that communicating with the child who is hearing impaired is different and likely always will be. From these initial reactions, some parents go through different stages of grieving such as frustration, denial, depression, and anger (Lomas et al., 2017; Owens & Farinella, 2019). They may initially blame their spouse, fate, or the professional community, or even misdirect anger and frustration toward themselves. Parents may have difficulty accepting assistance or recommendations from professionals, extended family, and friends. Some may become overprotective of the child and turn their attention away from other family members. Others may withdraw, finding isolation easier than coping with the child care demands placed upon them (Cook, Klein, & Chen, 2020).

Perhaps the greatest factor in positive resolution of such emotionally charged issues is acceptance of the hearing impairment. Achieving genuine acceptance of any disability is, for most families, an ongoing process. Stages of this process are not necessarily completed independently and in successive order, just as achieving a measure of acceptance does not prevent certain situations from reopening old emotional wounds. Grieving and uncertainty may emerge time and again during the child's development, but will be less severe as the family's coping mechanisms improve. The stages of grieving that follow the birth of a baby with a hearing loss are healthy expressions of normal emotional reactions. The process of working through such feelings should not be hurried; it allows the family members opportunities to recognize and acknowledge change in their lives, as well as time to formulate positive strategies for accommodating the child with the hearing impairment (Gargiulo & Kilgo, 2020). In this process, the development of positive relationships is individually and collectively encouraged. Parental support groups provide a very effective arena for

expressing concerns, offering support and encouragement, and formulating effective parenting strategies.

Siblings can play an important role in families that have a child with a hearing impairment.

RosaIreneBetancourt 10/Alamy Stock Photo

Siblings and Grandparents

Siblings and grandparents are not immune to the emotional issues that accompany the birth of a child with a hearing impairment. There is little formal research that examines the emotional impact of hearing impairment on either group. Siblings may feel unspoken pressure to compensate for perceived parental uncertainty and disappointment. Such perceptions may result in attempts to excel academically or socially. Some siblings describe very close relationships with their brother or sister who is hearing impaired, assuming a great deal of responsibility for the child, and describe the relationship as almost a parental one. Others resent the time and attention parents devote to their sibling with a hearing impairment. This resentment may take the form of jealousy or anger. Because of these and other factors, siblings of children with hearing impairments are often at risk for behavior problems. Perhaps the best way to help siblings is for parents to communicate with them, ask about concerns, talk openly about family issues, have uniform behavioral expectations, and ensure that family responsibilities are equally shared.

Luterman (2017) describes grandparents of children with hearing impairments as “the forgotten people.” Grandparents experience a “double hurt,” stemming from both the emotional pain of having a grandchild with a hearing impairment and the pain experienced by their own child—the grieving parent. Yet, grandparents are often able to offer emotional, logistical, and financial support. Parent support groups typically incorporate siblings, caregivers, and extended family members, affording them the opportunity to address the various dynamics of families dealing with hearing loss in a group setting.

Issues of Diversity

According to data from Gallaudet University (2014), over 50 percent of all students in programs for the deaf and hearing impaired are persons from culturally diverse groups. Serving pupils with hearing impairments from these populations creates unique, and sometimes difficult, challenges for educators and other service providers. Likewise, data from the U.S. Department of Education (2018) indicate that American Indian/Alaska Native, Asian, Native Hawaiian/Other Pacific Islander, and Hispanic children are at elevated risk for special education services due to a hearing impairment.

Debate is ongoing as to which instructional methodology best meets the needs of students with a hearing impairment.

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A contemporary issue of diversity involves the **Deaf culture**. Many individuals who are deaf or hard of hearing tend to identify with the Deaf community. They contend that they should be viewed not as deficient or pathological, but as members of a different culture with its own language, traditions, values, and history. For these individuals, their deafness provides a sense of pride and helps shape their self-identity (Owens & Farinella, 2019). The Deaf culture does not embrace the term *hearing impaired.* Its adherents view spoken English as an optional second language with ASL as

the language of choice. This bilingual-bicultural approach stands in opposition to oralist philosophies and forms of sign language other than ASL. Generally speaking, some proponents of the Deaf culture have delayed accepting cochlear implants, which seek to restore or enhance auditory information through surgery, thus possibly leading to the demise of their culture (see page 396).

Deaf culture Refers to individuals who are deaf who share similar values, attitudes, and practices and view American Sign Language as their natural language.

Trends, Issues, and Controversies

The debate regarding the most appropriate methodology for educating children with hearing impairments has raged for more than 200 years and continues to be an emotionally charged issue. Overall, the research findings on efficacy of various communication styles and educational philosophies are inconclusive. It does appear that infants with hearing impairments born to parents who are deaf and who use American Sign Language exhibit significantly better language development (Hunt & Marshall, 2013; National Institute on Deafness and Other Communication Disorders, 2019a). Determining the most appropriate methods for enhancing language acquisition, expressive and receptive communication skills, and educational achievement of children with hearing impairments is an issue of paramount importance. This issue has two critical elements: (1) kind of language and (2) form of communication. More specifically, there are two languages, ASL and Signed English systems, and two communication forms, oral and manual, to be considered. Any combination can produce a variety of approaches. The acquisition of one's native language is central to the development of functional literacy, which in turn provides the platform for future academic and societal success.

Total communication is currently the communication approach of choice in many public schools. Proponents of total communication contend that placing equal emphasis on manual signs, fingerspelling, spoken language, speechreading, and the use of residual hearing enhances the rate of language acquisition and use of English as the primary language. Yet, total communication has met with some opposition. It has been argued that learning English as a primary language denies children with hearing impairments their cultural birthright by limiting their exposure to Deaf culture and ASL, its native language. Opponents of total communication point to the historical research of Strong and Prinz (1997), which suggests that exposure to ASL correlates positively with enhanced literacy and academic performance and may actually facilitate learning English as a second language.

Current ideological and cultural controversies fueled by Deaf culture advocates and rigid proponents of various methodologies have polarized many educators. The bilingual-bicultural philosophy, often referred to as bi-bi, contends that deafness is a separate and viable culture within society, with ASL as its own unique and natural language. ASL has a unique grammar and syntax, and in the bi-bi approach English is learned as a second language. Advocates for Deaf culture consider hearing impairment to be nonpathological and, therefore, not a condition requiring medical intervention (for example, a cochlear implant). Individuals with significant hearing loss often work in the hearing world, but their family/social lives are usually sequestered within the deaf world. Proponents of Deaf culture claim that, when given a choice, individuals with significant hearing impairments would most often choose to spend the majority of their lives in the comfort of their own culture (Moores, 2001). Regrettably, the two societies, one deaf and the other hearing, often experience limited interaction and contact.

Chapter in Review

Definitions and Concepts of Hearing Impairment (Learning Objective 12.1)

- *Hearing impairment* is a generic term indicating a hearing disability that may range in severity from mild to profound.
- The term *deaf* refers to those in whom the sense of hearing is nonfunctional for the ordinary purposes of life. Deafness precludes successful processing of linguistic information through audition, with or without a hearing aid.
- An individual may be either congenitally deaf (born deaf) or adventitiously deaf—born with normal hearing that has become nonfunctional through illness or accident.
- Persons who are hard of hearing are those in whom the sense of hearing is defective but functional, either with or without a hearing aid, for the purpose of processing linguistic information.

Classification of Hearing Loss (Learning Objective 12.2)

- The ear is divided into three connected sections: the outer, the middle, and the inner ear. Hearing impairments are commonly classified according to their location in the hearing process and the severity of the loss.
- A conductive hearing loss is the interference of sound through the outer and middle ear.
- A sensorineural hearing loss is caused by defects of the inner ear (the cochlea), the auditory nerve that transmits impulses to the brain, or both.
- A mixed hearing loss involves both conductive and sensorineural loss.
- A central hearing loss is the result of damage to the central nervous system; an individual with this type of hearing loss may hear but not understand speech.

Assessment of Hearing Impairment (Learning Objective 12.3)

- Hearing loss is measured through testing procedures conducted by an audiologist and is graphed on an audiogram.
- The degree of hearing is usually reported in decibels (dB), a measure of sound intensity. It is also measured in hertz (Hz), or frequency of the sound.
- A hearing impairment is usually classified according to degree, ranging from mild to profound loss, based on different levels of intensity (dB) at different frequencies (Hz).
- One of the most common types of audiological tests is pure-tone audiometry, which is the practice of delivering sound tones to an individual via air conduction (headphones) and measuring recognition on an audiometer.
- Another common test is bone-conduction audiometry, which allows the signals to bypass the middle ear and be transmitted directly to the inner ear by vibrating the bones of the skull. It is used to ascertain whether there is a possible sensorineural or conductive hearing loss.
- More specialized types of hearing tests include play audiometry and speech audiometry.
- Almost 75,000 students between the ages of 3 and 21 were receiving some type of specialized services because of a hearing impairment in the 2016–2017 school year.

Age of Onset (Learning Objective 12.4)

- A prelingual hearing loss occurs prior to the development of speech and language while a postlingual impairment refers to a hearing loss manifesting itself after the acquisition of speech and language.

Historical Perspectives (Learning Objective 12.5)

- The education of individuals with hearing impairments has a long, and sometimes controversial, past involving competing points of view about the most appropriate strategy for educating students with a hearing loss.

Etiology of Hearing Impairment (Learning Objective 12.6)

- Approximately one third of all hearing loss is unknown; however, the known major causes are genetic or chromosomal anomalies, infections, developmental abnormalities, and trauma.

Characteristics of Individuals With Hearing Impairment (Learning Objective 12.7)

- Children with hearing impairments have IQs similar to those of their typical peers.
- Educational achievement in students with hearing impairments may be significantly delayed in comparison to that of their hearing peers, averaging three to four years below their age-appropriate grade levels.
- Play situations and the development of friendships are affected by difficulty with language development.

Educational Considerations (Learning Objective 12.8)

- The two principal educational settings for students with hearing impairment are public schools and special schools.
- There are three main instructional approaches to providing educational services to a child with a hearing impairment: (1) the auditory-oral method, (2) total communication, and (3) the bilingual-bicultural method.
- Currently a significant majority of educational and related service programs are using total communication.

Technology and Individuals With Hearing Impairments (Learning Objective 12.9)

- Technology offers tremendous benefits to individuals with hearing impairments, with programmable hearing aids, assistive listening devices, cochlear implants, and alerting devices that improve aspects of daily living being only a few examples.

Educational Services Across the Life Span (Learning Objective 12.10)

- Identification and early intervention is crucial for youngsters with a hearing impairment.
- Adolescents with a hearing impairment encounter many of the same issues as their hearing peers in addition to personal, social, community, and vocational challenges.
- The Americans with Disabilities Act requires that colleges and universities provide necessary and appropriate services to students with a hearing impairment seeking a postsecondary education.

Issues of Diversity (Learning Objective 12.11)

- Many persons who are deaf and hard of hearing contend that they should be viewed not as deficient or pathological, but rather as members of the Deaf culture with its own language, traditions, and values.

Study Questions

1. Define the terms *deaf* and *hard of hearing*.
2. Why is it important to know the age of onset, type, and degree of hearing loss?
3. What is the primary difference between prelingual and postlingual hearing impairments?
4. List the four major types of hearing loss.
5. Describe three different types of audiological evaluations.
6. What are some major areas of development that are usually affected by a hearing impairment?
7. List three major causes of hearing impairment.
8. What issues are central to the debate over manual and oral approaches?
9. Define the concept of a Deaf culture.
10. What is total communication, and how can it be used in the classroom?
11. Describe the bilingual-bicultural approach to educating pupils with hearing impairments.
12. In what two academic areas do students with hearing impairments usually lag behind their classmates?
13. Why is early identification of a hearing impairment critical?
14. Why do professionals assess the language and speech abilities of individuals with hearing impairments?
15. List five indicators of a possible hearing loss in the classroom.
16. What are three indicators in children that may predict success with a cochlear implant?
17. Identify five strategies a classroom teacher can use to promote communicative skills and enhance independence in the transition to adulthood.
18. Describe how to check a hearing aid.
19. How can technology benefit individuals with a hearing impairment?

Key Terms

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auditory trainers, 394
FM systems, 394
sound field systems, 394
telecommunication device for the deaf (TDD), 396
Deaf culture, 402

Learning Activities

1. Observe an audiological examination of a student.
    a. Describe the individual being tested.
    b. What tests were administered?
    c. Were any hearing difficulties identified? If so, what kind of hearing loss was detected?
    d. What were your reactions to the assessment?
2. Observe an infant/toddler program as well as a school-age program for students with hearing impairments.
    a. Where did you observe the program?
    b. Describe the learning environment.

c. Describe the activities you observed.
d. What type(s) of communication modes were used?
e. What were your reactions? What differences did you observe between the two programs?

3. Interview a general education teacher who has students who are deaf or hard of hearing in his or her class.

    a. How long has the teacher been educating students with hearing impairments?
    b. What type of professional training (preparation) does the teacher have?
    c. Ask the teacher about the primary purposes of the program and what kinds of problems he or she encounters.
    d. How would the teacher describe his or her classroom: as mainstreamed or fully inclusive?
    e. What communication modes are used?
    f. How is technology used in the classroom?
    g. Describe your personal and professional reactions to this experience.

Organizations Concerned With Hearing Impairments

Alexander Graham Bell Association for the Deaf and Hard of Hearing

www.agbell.org

American Speech-Language-Hearing Association

www.asha.org

Division for Communication, Language, and Deaf/Hard of Hearing, Council for Exceptional Children

https://dcdcec.org

National Association of the Deaf

www.nad.org

Reflecting on Standards

The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of the reflection exercises that follows correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Learning Environments (CEC Initial Preparation Standard 2.2)

Reflect on what you have learned about students with hearing impairments. If you were to have a student in your class with a hearing impairment, how might you help him or her learn skills for self-advocacy? In what ways might you be able to help your student better understand his or her disability and communicate his or her learning needs?

Focus on Instructional Planning and Strategies (CEC Initial Preparation Standard 5.2)

Reflect on what you have learned about the various assistive technologies available for students with hearing impairments. If you had a student in your class with a hearing impairment, how might you work with the student and his or her family to assess which assistive technologies might be best to use in your classroom? Who else might you need to involve from the school district to implement any new technologies?

Student Study Site

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13 Individuals With Visual Impairments

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Learning Objectives

After reading Chapter 13, you should be able to:

13.1 **Define** *legally blind, functionally blind, deaf-blind,* and *low vision*.
13.2 **Explain** the vision process.
13.3 **List** common visual impairments affecting school-age children.
13.4 **Summarize** the historical evolution of educational services for children and youth with visual impairments.
13.5 **Identify** causes of visual impairments.
13.6 **Discuss** characteristics of individuals with visual impairments.
13.7 **Describe** how visual acuity is assessed.
13.8 **Define** *literacy medium* and *learning medium*.
13.9 **Outline** instructional strategies for students with visual impairments.
13.10 **Explain** how technology benefits individuals with visual impairments.
13.11 **Summarize** educational services for persons with visual impairments across the life span.

Lessons in Life—One Parent's Journey

If you had asked me eleven years ago what I thought my life would be like in the years to come, having a child with special needs never would have crossed my mind. Even after the birth of my daughter, Saniya (considered legally blind at birth but now totally blind), I never thought I would become a teacher of children with visual impairments. As a certified teacher, I had taken a few undergraduate classes in special education, but I never considered this as a career path. My life has taken so many unexpected turns since that time. My experiences have taught me two key things: (1) Expect the unexpected, then make the best of it; and (2) when life seems like it is more than you can bear, if you push through, you'll be stronger than ever imagined.

When my daughter started kindergarten, I considered taking a Braille class so that I could assist her with her schoolwork. This is how I initially became aware of the teacher preparation in visual impairment at the University of Alabama at Birmingham—one of the few programs in the entire country. Honestly, I had no plans to complete a graduate degree program. I decided to just take an online Braille course instead. Yet, there was something in the back of my mind that continually made me think about earning a master's degree.

I don't know why I decided to go for it, but I finally knew in my heart that I wanted to become a teacher of students with visual impairments. I began the program when Saniya was in the second grade. In the beginning, I thought that I was doing it for her, but it didn't take long for me to realize that it was my daughter who would be helping me. She helped me with my Braille, she assisted with big class projects, and she continues to help

me now that I am a teacher. I also learn lessons in life from her. She teaches me to always seek the joy in life. She teaches me that I really don't have anything to complain about. She also teaches me how to be a better mother, a better teacher, and a better person.

One of the most important things I have learned from my daughter is that she is capable of doing the same things that her typical peers do. We try not to put limitations on her because of her blindness. Instead, we put her in a position to obtain as many different experiences as we can. Our family has gotten better at coming up with alternative ways of doing certain tasks. For example, when Saniya goes fishing with her dad, she uses twine instead of a fishing pole. She loops the twine, which is tied to the fishing string, around her hand and waits for the fish to tug on it. Once she feels the fish tugging on her bait, she jerks the string, sets the hook, and catches her fish—pretty ingenious indeed. My daughter also thinks of ways to make needed accommodations on her own. I recall when she was having difficulty getting her socks on with the seam in the right place over her toes. Saniya figured out that if she inserted her hand in the sock and located the seam, it was much easier to turn the sock before placing it on her foot. Accommodations are almost limitless if one uses his or her imagination and creativity.

Things may not always go as planned, but those types of situations also teach important life lessons. At times, it may take her longer to do certain tasks, but she learns about endurance and perseverance. Things may not work out for her the first, second, or even third time she tries something, but from this she learns about self-determination. Regrettably, there will always be some people and situations that, for one reason or another, will erect roadblocks, but from these experiences Saniya learns about self-advocacy. She has to learn how to be as independent as possible. In the natural order of things, the time will come when neither her father nor I will be around. The only way I can be at peace with this is to do all that I can to prepare her to live her life without us.

Our experiences have given me a unique perspective when it comes to being a parent of a child with a visual impairment and a teacher of students who are visually impaired. I personally know the dread that many parents feel when participating in an individualized education program meeting. I know the anxiousness of being the parent of a child with special needs. I know the uncertainty of wondering how we are going to make it through yet another year. I also know that many teachers experience some of these same emotions. We feel anxious about not knowing all the answers. We feel uncertainty wondering if what we are doing is good enough. We sometimes feel useless when our students are having difficulties and we can't immediately figure out why. We are always afraid of inadvertently doing something that may have a negative impact on our students.

I know that individually, neither the parents nor the teachers have all the right answers. Ideally, it takes a team of people to fully address the needs of our students. For my family, it is the support of my daughter's teachers, therapists, and doctors, as well as the support of our family, friends, and support groups, that aids my daughter in being successful. The relationships that were made when I was just "the mom" are the same relationships that strengthen me as an educator. It does indeed take a village of individuals to keep us going and headed in the right direction. If every parent and educator of students with special needs can create a village for his or her children with everyone working together toward common goals, there are no limits to what can be accomplished.

Saniya's Voice

Your life doesn't end because you are blind. You can still enjoy stuff. I like to go to parks and go down the slides. My favorite slides are the two-story slides because they are longer and you go faster than you do on the regular ones. I like climbing on rock walls because I like to go real high (I am not scared of heights). I also like to ride go-carts, four-wheelers, and bikes with my brother and cousins. Sometimes we go fast. Sometimes we make trails in the woods and go up ramps. I also like art. I enjoy making beautiful masterpieces out of clay. The McWane Science Center is my favorite place to visit. They have lots of fun things to do there. Sometimes I go to the movies by my home where they have descriptive video. Descriptive video tells you what is going on when there is no one speaking. Know that being blind does not stop me from doing all the things I like to do.

—*Anonymous*

Chapter revision by Susan A. Brennan, Deaf-blind Consultant and Project Coordinator at the Iowa Educational Services for the Blind and Visually Impaired, Council Bluffs, Iowa.

Visual impairment is a term that describes people who cannot see well even with correction. Throughout history, *blindness* has been used as a term to mean that something is not understood, such as "I was blind to that idea" or an elderly person is "old and blind." How many times do we use the stereotype of a blind individual begging on a street corner or groping for mobility in the environment? The stigma associated with loss of vision affects encounters with others, who may assume that the person is dependent on others for everything.

visual impairment An impairment in vision that, even with correction, adversely affects an individual's educational performance. The term includes both visual impairments and blindness.

Famous success stories about persons who are blind include those of Helen Keller and Mary Ingalls. Helen Keller and her teacher, Anne Sullivan, pursued their lifelong journey from Tuscumbia, Alabama, to Perkins Institution for the Blind (now known as Perkins School for the Blind), to Radcliffe College, and then to employment with the American Foundation for the Blind. Keller helped develop schools for the blind all over the world (Lash, 1980).

Legal blindness is visual acuity of 20/200 or less in the better eye after correction or a visual field that is no greater than 20 degrees.

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Mary Ingalls was a student at Iowa College for the Blind (now Iowa Educational Services for the Blind and Visually Impaired) in 1881. Her scholastic endeavors were made famous through Laura Ingalls Wilder's *Little House on the Prairie*, which later became a television series. Laura's portrayal of the determination of her sister Mary and their family to continue her education after she lost her vision at age 14 showed the world the success a person who is blind can achieve.

Movies about persons with visual impairments and publicity about musicians and athletes who are visually impaired have helped to change the image of persons with visual impairments. Braille in elevators, voice output on computers, and access to restaurant menus in Braille reflect a growing recognition that the person with a vision loss is a competent individual with only a visual acuity difference. Such accommodations help promote independence in the everyday world.

The goal of this chapter is to provide an understanding of the visual process, vision loss, the effects of vision loss on school performance and vocation, and the roles of the family and community. Historical foundations, classifications of vision loss, educational practices, and technological interventions are presented for you to examine how the

general educational curriculum may be adapted for the student with a visual impairment.

Defining Visual Impairments

Visual impairment including blindness is defined in the Individuals with Disabilities Education Improvement Act (IDEA 2004, PL 108–446) as an impairment in vision that, even with correction, adversely affects an individual's educational performance. The term includes both visual impairments and blindness. Educational services for students with visual impairments are determined by variations of the definition specified in IDEA. This definition encompasses students with a wide range of visual impairments, who may vary significantly in their visual abilities. One student may have no functional vision and must learn through tactual means; another may be able to read and write print with modifications such as enlarged print; still others may use a combination of both Braille and print. An appropriate learning medium for each student must be determined by the student's ability to use each of these means or a combination of means.

Visual impairments may include a reduction of **visual acuity** (the ability to visually perceive details) of near or distant vision or a restriction in the field of vision. In other words, acuity affects how well a child sees materials presented up close or how accurately the child can see work presented on chalkboards or maps across the room. An impairment involving the **visual field** refers to the amount of vision a student has in the quadrant regions to the right, to the left, above, and below while gazing straight ahead. Students may exhibit unusual head turning or positioning in order to view materials with the portion of the visual field that is functional. Students with a **field loss**, or a restriction to the visual field, must be taught to use environmental cues for safety purposes on the playground, in the classroom, and in other environments.

visual acuity The ability to visually distinguish details of near or distant objects.

visual field The amount of vision in the quadrant regions to the right, to the left, above, and below while gazing straight ahead.

field loss A restriction to the visual field within the quadrant regions to the right, to the left, above, and below while gazing straight ahead.

Other areas of consideration in understanding a student's visual abilities include the age of the student at the time of the vision loss, the severity and stability of the eye condition, and whether the condition is the result of hereditary or congenital conditions. This information is usually obtained through a medical or clinically based assessment by an optometrist or ophthalmologist and does not necessarily include how the person functions in various settings throughout the school, home, or community.

Understanding the definitions of visual impairments is critical for the educational team in developing an appropriate educational program. Over the years, the term **legally blind** has been used as a federal definition of blindness. This definition involves using a **Snellen chart**, which is a clinical measurement of the true amount of distance vision an individual has under certain conditions. Legal blindness is a visual acuity of 20/200 or less in the better eye with correction or a visual field that is no greater than 20 degrees. In this definition, 20 feet is the distance at which visual acuity is measured. The *200* in this definition indicates the distance (200 feet) from which a person with normal vision would be able to identify the largest symbol on the eye chart. The second part of the definition refers to field restriction, which involves the amount of vision a person has to view objects peripherally. The legal definition is considered in education, but by itself has little value in planning a functional educational program for students with visual impairments.

legally blind A visual acuity of 20/200 or less in the better eye with correction or a visual field that is no greater than 20 degrees.

Snellen chart An eye chart of clinical measurement of the true amount of distance vision an individual has under certain conditions.

Individuals identified as blind use tactile and auditory abilities as their primary environmental channels of learning. They may have some minimal

light or form perception or be totally without sight. Braille or other tactile media are commonly the preferred literacy channel. Orientation and mobility training is required for all students who are blind.

Individuals are considered **functionally blind** when the primary channel of learning is through tactile or auditory means. They may use limited vision to obtain additional information about the environment. These individuals usually use Braille as the **primary literacy medium** (most frequently used method of reading) and require orientation and mobility training.

functionally blind An educational description when the primary channel of learning is through tactile and auditory means.

primary literacy medium An individual's most frequently used method of reading and writing.

A person is described as having **low vision** when the visual impairment interferes with the ability to perform daily activities. The primary channel of learning is through visual means with the use of prescription and nonprescription devices. The literacy medium varies with each individual according to the use of the remaining vision and the use of low vision devices. Orientation and mobility training is required for students to learn to use **residual vision** (usable vision).

low vision A visual impairment that interferes with the ability to perform daily activities and in which the primary channel of learning is through the use of prescription and nonprescription devices.

residual vision An individual's usable vision.

Persons with deaf-blindness have limited vision and hearing that interfere with visual and auditory tasks. According to IDEA 2004, **deaf-blindness** means concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational needs that the student who is deaf-blind cannot be accommodated in special education programs solely for children with

deafness or children with blindness. Individuals who are deaf-blind may use tactile, auditory, and visual means to access information. Braille and sign language are the preferred literacy and communication media for persons with deaf-blindness. An individual with deaf-blindness may also use tactile symbols, object cues, and tactile sign language. A sign language interpreter, intervener, and orientation and mobility training may be required for persons with deaf-blindness. The use of a variety of ways to communicate facilitates direct learning experiences for the person with deaf-blindness (Chen & Downing, 2006; Grisham-Brown, Degirmenci, Snyder, & Luiselli, 2018; Luckner, Bruce, & Ferrell, 2016).

deaf-blindness Concomitant hearing and visual impairments.

The Eye and How It Works

The human eye is the organ that gives us the sense of sight, which allows us to learn more about the surrounding world than any of the other four senses. We use our eyes in almost every activity we perform, whether reading, working, watching television, writing a letter, or driving a car. The eye allows us to see and interpret the shapes, colors, and dimensions of objects by processing light. Light enters the eye first through the clear **cornea** and then through the circular opening in the **iris** called the **pupil**. Next the light is converged by the crystalline **lens**. The light progresses through the gelatinous **vitreous humor** to a clear focus on the **retina**, the central area of which is the **macula**. In the retina, light impulses are changed into electrical signals and sent along the **optic nerve** to the occipital (posterior) lobe of the brain, which interprets these electrical signals as visual images.

cornea The transparent outer portion of the eyeball that transmits light to the retina.

iris The colored, circular part of the eye in front of the lens that controls the size of the pupil.

pupil The circular opening at the center of the iris that controls the amount of light allowed into the eye.

lens The transparent disc in the middle of the eye behind the pupil that brings rays of light into focus on the retina.

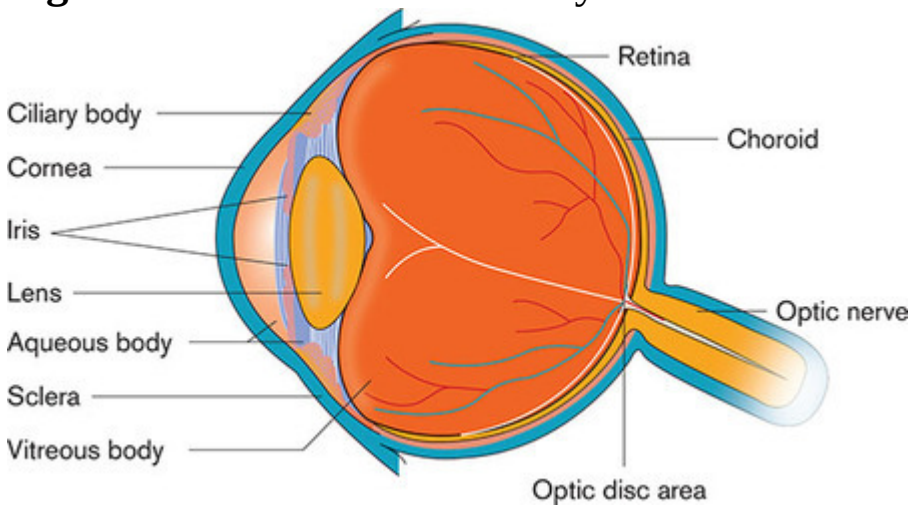
vitreous humor A colorless mass of soft, gelatinlike material that fills the eyeball behind the lens.

retina The inner layer of the eye containing light-sensitive cells that connect with the brain through the optic nerve.

macula The area of best central vision located in the retina.

optic nerve The nerve at the posterior of the eye that carries messages from the retina to the brain.

Figure 13.1 Schematic of the Eye



Source: National Eye Institute. (2019). *Diagram of the Eye*. Available at https://nei.nih.gov/health/eyediagram

When an eyeball is longer than normal from front to back, the incoming rays of light focus in front of the retina instead of on the retina. This condition is known as **myopia** or nearsightedness. In this situation, a pupil can see near objects (for example, his or her textbook), but viewing objects at a distance—the chalkboard—may be problematic. If the eyeball is too short, the image will focus behind the retina. This condition is commonly referred to as **hyperopia** or farsightedness. A child with hyperopia typically has no problem seeing distant objects but encounters difficulty seeing near objects. Hyperopia is the most common refractive error in children (Geddie, Bina, & Miller, 2013).

myopia Elongation of the eye that causes extreme nearsightedness and decreased visual acuity.

hyperopia Change in the shape of the eye, which shortens the light ray path and causes farsightedness.

In the case of **astigmatism**, one or more surfaces of the cornea or lens (the eye structures that focus incoming light) are not spherical (shaped like the side of a basketball) but cylindrical (shaped like the side of a football). As a result, there is no distinct point of focus inside the eye but, rather, a smeared or spread-out focus.

astigmatism Distorted vision resulting from one or more surfaces of the cornea or lens being cylindrical, not spherical.

The eyeball, which measures approximately one inch in diameter, is set in a protective cone-shaped cavity in the skull called the **orbit** or socket. The orbit is surrounded by layers of soft, fatty tissue that protect the eye and enable it to turn easily. Three pairs of muscles regulate the motion of each eye.

orbit A protective cone-shaped cavity in the skull, sometimes called the socket.

Figure 13.1 shows the anatomy of the human eye while Table 13.1 presents key terminology associated with the functioning of the eye.

Classification of Visual Impairments

In many instances, children are eligible for special education services according to the amount of vision loss and how that vision loss affects educational performance. The most common visual impairments affecting the school-age child include **cataracts**, **glaucoma**, **optic nerve atrophy**, myopia, **albinism**, eye injury, cortical visual impairment, and **retinopathy of prematurity (ROP)**. Table 13.2 portrays the causes and characteristics of these vision difficulties. Examples of how children see with different eye diseases are shown in Figure 13.2. Still other visual impairments are a consequence of systemic diseases such as diabetes, hypertension, multiple sclerosis, and rheumatoid arthritis.

cataracts Lenses that are opaque or cloudy due to trauma or age.

glaucoma A disease caused by increased pressure inside the aqueous portion of the eye with loss in the visual field.

Table 13.1 Terminology Describing Eye Functioning

Table 13.1 Terminology Describing Eye Functioning

Term	Definition
Aqueous humor	A clear, watery fluid that fills the front part of the eye between the cornea, lens, and iris.
Choroid	The middle layer of the eyeball, which contains veins and arteries that furnish nourishment to the eye, especially the retina.
Conjunctiva	A mucous membrane that lines the eyelids and covers the front part of the eyeball.

Term	Definition
Cornea	The transparent outer portion of the eyeball that transmits light to the retina.
Iris	The colored, circular part of the eye in front of the lens. It controls the size of the pupil.
Lens	The transparent disc in the middle of the eye behind the pupil that brings rays of light into focus on the retina.
Optic nerve	The important nerve that carries messages from the retina to the brain.
Pupil	The circular opening at the center of the iris that controls the amount of light allowed into the eye.
Retina	The inner layer of the eye containing light-sensitive cells that connect with the brain through the optic nerve.
Sclera	The white part of the eye; a tough coating that, along with the cornea, forms the external protective coat of the eye.
Vitreous body	A colorless mass of soft, gelatinlike material that fills the eyeball behind the lens.

optic nerve atrophy Degeneration of the optic nerve, which may be congenital or hereditary, causing loss of central vision, distorted color vision, and reduced visual acuity.

retinopathy of prematurity (ROP) An interruption in the vascular system of the eye, due to premature birth, in which veins and arteries begin to grow in an unorganized manner and cause bundles that pull together and detach the retina, resulting in loss of peripheral vision or total blindness.

A Brief History of Visual Impairments

albinism A hereditary condition with partial or total absence of pigment in the eye.

Education for and changes of attitudes toward persons with visual impairments were of great interest to Diderot (1749), who wrote to King Louis of France a philosophical work called *Letter on the Blind for the Use of Those Who Can See.* Diderot had contact with two people who were blind: Nicholas Saunderson, a mathematics professor, and Maria Theresia von Paradis, a Viennese pianist and music teacher. Diderot was one of the early champions of the visually impaired and believed that persons who were blind could lead normal lives.

In 1784, Valentin Haüy established the Institut National des Jeunes Aveugles in Paris. This institution for blind youth was the first school for the education of children with vision loss. Haüy used Roman letters to teach students who were blind. His students, however, were using night writing codes within the school. In the 1800s, one of Haüy's students, Louis Braille, developed an embossed communication system so he could write to his friends in a simpler manner than using raised letters (Scholl, Mulholland, & Lonergan, 1986). His system of embossed dots, which was adapted from military codes, was not accepted by educators until later, but his system of **Braille** dots remains today as the literacy code accepted throughout the world.

Braille A communication system utilizing raised representation of written materials for tactual interpretation.

The first schools for the blind in the United States were financially supported through the school in Paris. These schools included the Perkins School for the Blind in Boston, established in 1829; the New York Institution for the Blind, incorporated in 1831; and the Overbrook School for the Blind in Philadelphia, opened in 1833. These residential schools, modeled after the Institut National des Jeunes Aveugles in Paris, were the

brainchild of Samuel Gridley Howe, who had visited European schools to learn how to provide education for the blind in the United States (Scholl et al., 1986).

The first residential schools were designed to prepare students with visual impairments with daily living skills as well as menial jobs. The schools were a type of experiment to see if individuals with disabilities could learn to function as participating citizens instead of being sheltered away and viewed as helpless and, therefore, dependent on the generosity of others.

In the early 1900s, children with visual impairments were served by various agencies such as hospitals and children's rehabilitation centers in addition to residential schools; however, there were no laws mandating services. Children were often recruited to attend residential schools where they would acquire vocational skills needed to become contributing members of their community (Best, 1919). In the 1950s and 1960s, vision professionals endorsed "sight-saving" classes located in public schools that "saved" children's remaining vision by not allowing them to use their residual vision. Children were blindfolded and taught to read and write tactually.

Figure 13.2 Examples of Eye Diseases

Source: National Eye Institute. (2019). *Eye Disease Simulations.* Available at https://nei.nih.gov/health/examples/

Table 13.2 Common Visual Impairments of School-Age Children

Table 13.2 Common Visual Impairments of School-Age Children

Condition	Cause	Characteristics

Condition	Cause	Characteristics
Congenital cataracts	Congenital anomaly, infection, severe malnutrition, systemic disease, or trauma	Blurred vision, nystagmus
Congenital glaucoma	Increased pressure of the eye	Excessive tearing, cloudy lens, pain, restricted visual fields
Eye injury	Trauma	Poor visual acuity or blindness resulting from injury
Myopia	Elongation of the eye	Extreme nearsightedness, decreased visual acuity
Ocular albinism	Total or partial absence of pigment, hereditary condition	Nystagmus, light sensitivity, decreased visual acuity
Optic atrophy	Degeneration of the optic nerve, may be congenital or hereditary	Loss of central vision, color vision, and reduced visual acuity
Retinopathy of prematurity (ROP)	Prematurity and low birth weight	Loss of peripheral vision; total blindness may occur
Coloboma	Congenital genetic anomaly	Hole in one of the structures of the eye such

Condition	Cause	Characteristics
		as the iris, retina, choroid, or optic disc
Cortical visual impairment (CVI)	Congenital anomaly, traumatic brain injury, chromosomal disorder, prematurity	Lesion to the cortex of the brain that is related to vision, structure of the eye is not impaired

Source: Adapted from Center for Parent Information and Resources. (2017). *Visual Impairment, Including Blindness*. Available at www.parentcenterhub.org/repository/visualimpairment

During this time period, parents and educators also saw a need for an array of school placement options for students with visual impairments. Focusing on individual rights, this movement was related to the civil rights movement, the development of the Head Start program, and the growing needs of young children who were born with visual impairments during the baby boom following World War II (Lang, 1992). Residential and public school options emerged to meet the educational needs of the child and his or her rights within the community.

In the 1970s, professionals accepted the theory that vision should be stimulated and children should be taught to efficiently and effectively use their remaining vision. Natalie Barraga (1973) was of the opinion that children could learn to use whatever vision they had and it would improve with practice. The training of residual vision to gather information through tracking, focusing, and eye teaming was known as **visual efficiency**. The child was taught to use spectacles, magnifiers, and any other assistive devices to improve the use of any remaining vision. The theory that visual skills can be learned is still discussed today.

visual efficiency How well an individual uses remaining visual acuity at a distance or close up.

At this time, children with visual impairments were attending both residential and public schools; however, legislation such as PL 94–142, enacted in 1975, required school districts to identify and serve children with visual impairments in the local community. Many of these students were placed in the general education classroom with assistance provided by vision specialists serving as consultants. Vocational training was not emphasized because integration of children with visual impairment allowed for access to the general education curriculum. Today, students with visual impairments are able to receive specialized vision services from infancy through young adulthood in the least restrictive environment appropriate for each person.

Prevalence of Visual Impairments

Visual impairments are relatively rare among children and young adults. The U.S. Department of Education (2018) reports that approximately 24,200 children ages 6–21 were receiving services in the 2016–2017 school year because of a visual impairment. When compared to the total number of school-age children who are receiving a special education, students with visual impairments constitute only 0.4 percent of pupils with a disability. Visual impairment, therefore, is one of the least prevalent disabilities.

Recent data from the U.S. Department of Education (2018) indicate that slightly more than 3,000 preschoolers were receiving special education services in the 2016–2017 school year because of visual impairments. This group of youngsters represents 0.4 percent of all preschoolers with a disability.

Vision specialists believe that approximately three out of four children with a visual impairment also have co-occurring developmental or physical disabilities (de Beaufort, 2019). Vision loss may be associated with cerebral palsy, muscular dystrophy, prematurity, or brain injury. As a result of improvements in neonatology and advanced medical procedures, this population of children continues to grow. Students in these circumstances are often reported to the U.S. Department of Education in disability categories other than visual impairment; visual impairment, however, is recognized as a secondary disability.

The Vision Process and Etiology of Visual Impairments

In working with students with visual impairments, it is important to understand how the vision system works. Here we review some of the causes of visual impairments and how they can affect the student's functional vision.

Light enters the eye through the cornea (see Figure 13.1, page 413), which is the clear, transparent covering at the front of the eye. The cornea is curved in shape and serves as a strong protective structure for the inner parts of the eye. It assists in focusing the optical image that will reach the brain. If the cornea is damaged through trauma or disease and attention is not given to the disturbance, then the inner structures of the eye may become infected, which can result in permanent visual impairment and even total blindness.

As light passes through the cornea, it goes into an area called the anterior chamber, which is filled with aqueous fluid. This fluid helps bring nutrients to and remove waste from the back surface of the cornea. It also helps maintain the shape of the eye. The major disease that occurs in the aqueous humor is glaucoma, which can result in a loss of visual acuity as well as a loss in the visual field. Students with glaucoma often have headaches and require frequent periods of rest. Students may also need medication to treat this disease. Student health care plans should include this information.

The next section of the eye that light must travel through is the iris. The iris is the colored, circular muscle of the eye that controls the amount of light that comes into the eye by regulating the size of the pupil. The pupil is the opening in the iris where light enters the eye. If the iris is malformed, the function of light control will be interrupted, and the child can become **photophobic** (sensitive to light). Students may require tinted glasses, changes to overhead classroom lighting, or optical devices to reduce the amount of light reaching the retina. Close work may result in fatigue and

blurring. Mobility training should be provided, if required, to work with depth perception in moving about the environment. Teachers should be aware of children with abnormalities of the iris and refer them for further medical attention.

photophobic Sensitive to light.

The lens is a colorless, transparent oval structure suspended behind the iris. The function of the lens is to filter and bend the light rays before they reach the back part of the eye. Cataracts are lenses that are opaque or cloudy as a result of trauma or age. When this occurs, the light rays to the back of the eye will be distorted, resulting in reduced visual acuity. Children with congenital cataracts often have the cataracts removed. If needed, this should be done as early as possible to allow for normal vision development. In the absence of the lens (**aphakia**), the eye will appear flat, and light will not be filtered appropriately. The child will be photophobic and may complain of serious glare problems. Depending on the location of the cataract, a child's color vision may also be distorted. Squinting, caused by a lack of visual stimulation and resulting in reduced visual acuity, can be a characteristic of a child with cataracts. Low illumination may be preferred. Additional time may be required to move from one activity to another to accommodate lighting needs. Cataracts may also be associated with Down syndrome, Marfan syndrome, and rubella.

aphakia Absence of the lens, causing light sensitivity and loss of visual acuity.

Behind the lens, light must travel through a clear liquid gel (vitreous body). This thick fluid serves as a filter for light and helps maintain the shape of the eye. In diabetes, the vitreous body often contains particles or tissue from vascular bleeding, which can distort vision, affecting peripheral vision as well as central visual acuity. The child sees blurry and distorted images and has difficulty reading and observing objects at a distance.

After the light goes through the vitreous fluid, it reaches the retina. The retina, located in the innermost part of the eye, contains layers of light-

sensitive nerve cells. It is very thin and has an intricate vascular system. This is the area where the light is sent to the optic nerve for transmission to the brain. Most retina disorders result in blurred vision. Unlike other eye diseases associated with pain, the retina has no pain fibers or other physical characteristics such as red and inflamed eyes. The purpose of the retina is to receive the light image and send it to the brain through the optic nerve. The optic nerve carries the light messages (electrical signals) to the brain, where they are interpreted as visual images known as sight.

Rods and cones are photoreceptive cells found in the retina. **Rod cells**, located mainly in the peripheral areas, are extremely light sensitive. Responsible for shape and motion, they function best in reduced illumination. Rod cells are not responsive to color. **Cone cells** are located mainly in the central area of the retina. Color is defined in the cone cells. Only special cones are found in the macula area, which is the area of best central vision, and the fovea area, which is the area of most acute vision. **Macular degeneration** is a common eye disease in adults, but it may also occur in young people. This disease involves damage to the central part of the retina cones, affecting central vision, photophobia, and color vision.

cone cells Light-sensitive cells located mainly in the central area of the retina that define color.

rod cells Light-sensitive cells located mainly in the peripheral areas of the retina that are responsible for shape and motion, function best in reduced illumination, and are not responsive to color.

macular degeneration A common eye disease in adults, which may also occur in young people, involving damage to the central part of the retina cones, affecting central vision, light sensitivity, and color.

If a child has retinopathy of prematurity, vascular growth has been interrupted by premature birth. The veins and arteries begin to grow in an unorganized manner causing bundles, which pull together and detach the retina. The child loses first peripheral vision and then the whole field of

vision unless surgical intervention is immediate. Spotty vision, retinal scarring, field loss, and glaucoma may also be present.

In some instances, a youngster may experience total blindness. When an infant is diagnosed with retinopathy of prematurity, early intervention services should be initiated, including services from a teacher for the visually impaired and an orientation and mobility specialist.

According to the Texas School for the Blind and Visually Impaired (2019a), other retinal diseases include the following:

- **Retinitis pigmentosa** is a hereditary condition involving gradual degeneration of the retina, which can result in night blindness, photophobia, and eventually loss of macular vision.
- Toxoplasmosis is a severe infection transmitted through contact with domestic animals such as cats or chickens. Lesions on the retina can reduce visual acuity and field vision. Squinting is an observable characteristic of children with toxoplasmosis.
- Albinism is a congenital condition characterized by a lack of pigment (skin, hair, or eyes). If the eyes are the only area affected, it is called ocular albinism. These children may be extremely photophobic and sensitive to glare, both in the classroom and outdoors. They may have high refractive problems, but the visual fields are usually normal. Fatigue may become a factor in close work.
- **Coloboma** is a congenital condition that results in a teardrop shape of the pupil, iris, lens, retina, choroid, or optic nerve. Field of vision may be affected, problems with glare may also be present, and problems with depth perception may occur.
- Optic nerve atrophy is caused by a variety of diseases and is the loss of some or all nerve fibers in the optic nerve. Early treatment can prevent a loss of visual acuity. Without treatment, optic atrophy can result in conditions from low visual acuity to total blindness.

retinitis pigmentosa Pigmentation of the retina that can result in night blindness, photophobia, and eventual loss of vision in various parts of the periphery.

coloboma A congenital condition that results in a teardrop shape of the pupil, iris, lens, retina, choroid, or optic nerve; may involve loss of field vision as well as problems with glare and depth perception.

Prevention of Visual Impairments

Most visual impairments are genetic in source, but others can be prevented or controlled. Prenatal care can prevent eye problems secondary to sexually transmitted diseases, prematurity, or known hereditary problems. Screening of babies in the hospital nursery, youngsters in the preschool setting, and older students on a regular basis can help detect and prevent eye diseases that cause visual impairments.

Eye safety is a preventive measure against eye injuries that can hinder visual acuity and even cause blindness. Ocular trauma can affect the orbit, the eyelids, and other structures of the eye, and immediate intervention is necessary. Some trauma causes infections, changes in the appearance of the eye, and even blindness.

Early Detection

Early screening and diagnosis can determine the prognosis for visual impairments. Eye examinations should take place shortly after birth, at 6 months of age, before entering school, and periodically throughout the school years. Children considered to be at risk for the development of vision difficulties may require additional testing or more frequent evaluations. Some of the factors that may place an infant, toddler, or child at risk for visual impairment include the following:

- Cerebral palsy
- Congenital cataracts
- Difficult delivery resulting in low Apgar scores
- Maternal infections acquired during pregnancy (rubella, herpes, cytomegalovirus, toxoplasmosis)
- Prematurity or low birth weight
- Strabismus (American Optometric Association, 2019)

Eye Safety

Eye injuries are common. They can range from a mild abrasion with bleeding in the front of the eye to retinal detachment, penetration of the eye, or actual rupture of the globe (eyeball). Some injuries heal without loss of vision; others result in the loss of the eye. At least 90 percent of all eye injuries to children can be prevented by understanding the dangers, identifying and correcting hazards, and using greater care when supervising children (Prevent Blindness America, 2019). Some of the most frequent causes of eye injuries are listed as follows:

- Accidental exposure to harmful household and cleaning products, such as detergents, paints, pesticides, glues, and adhesives
- Automobile accidents (a leading cause of eye injuries to young children)
- Falls involving home furnishings and fixtures such as beds, stairs, tables, and toys
- Fireworks, which may cause injury to the user and bystanders alike
- Misuse of everyday objects, such as home repair and yard care products, personal use items, kitchen utensils, silverware, pens, and pencils
- Misuse of toys or altering toys

Characteristics of Individuals With Visual Impairments

Visual impairment affects the type of experiences the child has, the ability to travel within his or her environment, and participation in his or her community. These factors will be affected differently depending on the amount of vision loss. The child with low vision has experiences that are different from those of the child who is legally blind or totally blind. The Optometric Extension Program Foundation has developed a checklist of observable characteristics of vision difficulties in children to assist teachers in making reliable observations of children's visual behavior (see Table 13.3).

Table 13.3 Behavioral Characteristics in Vision Function Problems

Table 13.3 Behavioral Characteristics in Vision Function Problems

Unusual turning of the head, body, or eye
Holding reading material extremely close to the face
Excessive rubbing of the eye
Watery eyes
Eye fatigue
Frequent eye pain
Frequent headaches
Squinting or shading the eye to view objects

Constantly having difficulty in keeping up when reading and writing
Using markers such as pencils and fingers when reading
Difficulty copying from the board or transparencies
Confusion in writing letters and numbers appropriately
“Clumsy” movement from one environment to another
Poor posture in both standing and sitting
Reluctance to participate in social and physical activities
Poor grades
Difficulty with color identification or color coordination
Sensory perceptual coordination
Misaligning columns when writing math problems
Requiring additional time to complete a task
Failing to make eye contact when talking to people
Behavior problems

Source: Adapted from *Educator's Guide & Checklist to Classroom Vision Problems* (Timonium, MD: Optometric Extension Program Foundation, 2015).

Academic Performance

At one time, it was believed that visual impairments were associated with lowered intellectual abilities, but we now know that this is not true. In fact, in many instances, the intellectual capabilities of students with visual impairments are similar to those of their sighted peers (Gargiulo & Metcalf, 2017). Despite this, significant academic delays are not uncommon in learners with visual impairments. This is most likely due to their restricted opportunity to obtain information visually (Pogrund & Fazzi, 2002). For these children, unlike their sighted classmates, incidental learning derived from interacting with the environment is severely limited. As a result, conceptual development and other learning in pupils with visual impairments primarily depend on tactile (touch) experiences and the use of sensory modalities other than vision (Chen & Downing, 2006; Gargiulo & Metcalf, 2017).

It is important that children with visual impairments feel accepted by their classmates.

iStock.com/FatCamera

Socialization

The everyday experiences of children who have visual impairments are affected because these children do not respond visually to people in the environment. Maintaining eye contact during speech, smiling at someone in a friendly manner, and reaching out to touch someone nearby are not innate skills for the child who cannot see details in his or her immediate surroundings. For students with a visual impairment, knowledge about body parts, eating skills, age-appropriate behaviors, clothing, grooming, and other social skills are not learned by viewing family members or peers in the community. Socially appropriate behaviors must be intentionally taught to the person with a visual impairment so he or she can successfully navigate social situations and, consequently, sighted individuals may feel more at ease when interacting with him or her.

Social immaturity and feelings of isolation in addition to low self-esteem are not uncommon consequences of a vision loss (de Beaufort, 2019; Gargiulo & Metcalf, 2017).

Although not unique to children with visual impairments, some students may exhibit **stereotypic behaviors**, historically identified as blindisms. These repetitive bodily movements, which serve no constructive purpose, are typically characterized by hand flapping, head weaving, twirling, eye pressing, and rocking. While not necessarily harmful, these actions are conspicuous and often attract undesirable and negative attention and may interfere with learning and socialization (Gargiulo & Metcalf, 2017). It is not known why children with visual impairments engage in stereotypic behaviors, although a variety of competing theories are available (Family Connect, 2019b).

stereotypic behavior A variety of repetitive bodily movements frequently exhibited by individuals with a visual impairment.

Travel Skills

The child with vision loss may travel with a cane, a dog, or a sighted guide and will require training in orientation and mobility (O&M, described later in the chapter). Part of the expanded core curriculum for students with vision loss, this training is provided by a certified instructor, who teaches skills to orient a person to the surroundings and to move independently and safely in the environment. O&M training is necessary for the child who is totally blind, with no light perception, or has low vision.

The child who is visually impaired or legally blind will retrieve travel information tactually and auditorily, with minimal use of vision for tasks where large objects or light affects mobility decisions. Many parents notice that the young child does not turn his or her head toward the person talking and seems to grope for toys on the floor, hold onto the wall, or sit alone rather than explore the room. The child may have difficulty reacting to visual cues, sit in one place until guided to another setting, and become dependent on others for stimulation within the immediate environment. The child may also concentrate on items within the immediate environment, talk out when it is not appropriate, and ask questions to maintain voice contact with people in the room. Every child receiving educational vision services should receive an O&M assessment. This includes infants, toddlers, and children with multiple disabilities.

Vocational Skills

Children with visual impairments begin vocational skills training at an early age if early intervention is provided or a preschool class is available. Children learn about dressing, eating, cooking, telling time, and using calendars for scheduling events in daily life. As the child progresses through school, a specialized curriculum (expanded core curriculum) may be introduced to teach about earning money, having a job, and traveling within the community.

Entering the world of work is an issue for vocational development. The student must know how to bathe, dress, prepare a meal, and plan the travel details to get to a job. After arriving at the workplace, the student must learn the building layout and the location of necessary sites such as the main office, restroom, lunchroom, and other important places within the company. Job duties and responsibilities must be explained so that job tasks can be completed successfully. Ethical behavior within the workplace must be learned before the first day of work. Ways to communicate with people within the work setting are also an educational issue.

The child with a visual impairment faces quality-of-life issues that may differ from those faced by persons with other disabilities. The amount of vision loss, the intervention strategies, and the quality of life should all be taken into account. Independence begins in the early years and continues throughout life, affecting the quality of life at work, at home, and in the community. Vocational skills are a part of the preschool plan, the educational program, and the transition to adulthood so that age-appropriate skills are learned and used for independence.

Assessment of Students With Visual Impairments

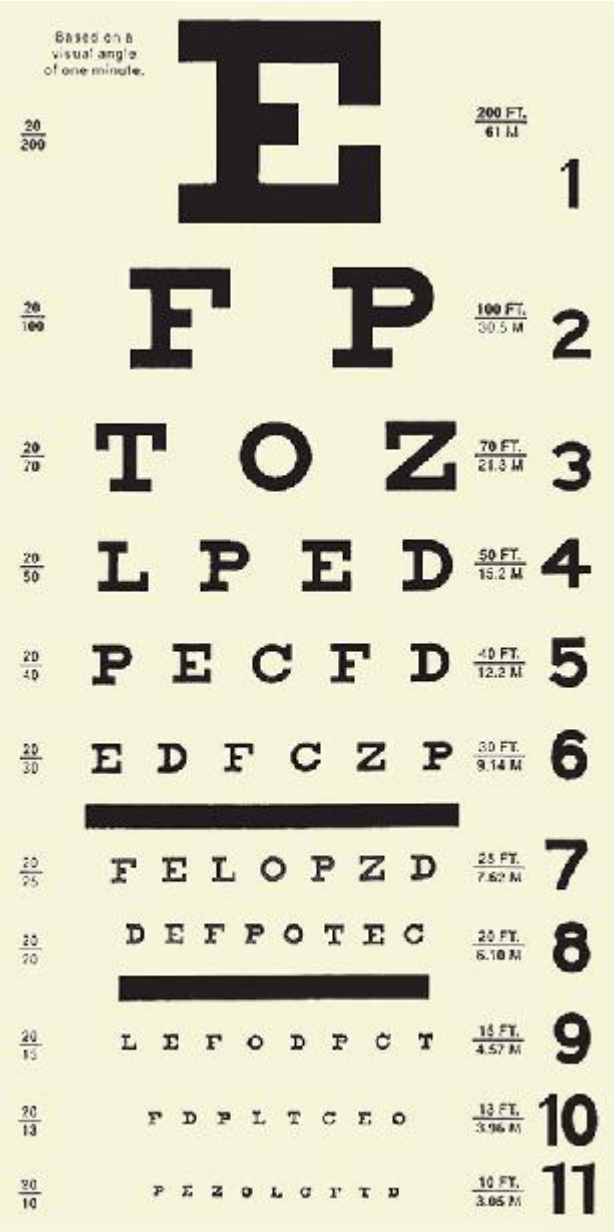
Public Law 108–446 ensures that all students with disabilities will have available a free appropriate public education. A comprehensive assessment is required to determine eligibility for special education services and to develop an educational program that provides for the individual needs of each pupil. In developing an educational program for children with visual impairments, the assessment process must comply with the equivalent guidelines for other areas of exceptionality while determining the unique needs and abilities of students with visual impairments.

Some children may be identified at birth as having a visual impairment through routine medical examinations, but many others are not identified as visually impaired until later. Parents or caregivers may notice unusual developmental behaviors caused by a vision loss. Some children may be diagnosed with a visual impairment following an accident or childhood illness. Other children may be identified through preschool or kindergarten vision screening programs.

A screening for visual acuity is often provided at school or in the physician's office. The acuity chart most often used for testing and reporting vision loss is the Snellen chart (see Figure 13.3). An example of a distance loss on the Snellen chart is 20/70, meaning that the person has to be 20 feet away from the chart to see what the normal eye can see from 70 feet. This chart is a 20-foot distance test; other tests are given for near vision and other vision problems.

Any student identified with a suspected vision problem should be referred to a licensed ophthalmologist or optometrist for further evaluation, including a medical examination and report. The information in this report should include etiology, medical history and diagnosis, ocular health, visual abilities, recommended low vision devices, possible assistance with travel, and a reevaluation date. This information may be provided to the educational system through a written ocular report (see Figure 13.4).

Figure 13.3 Snellen Chart



Source: National Eye Institute. (2019). *Snellen Visual Acuity Chart.* Available at https://www.flickr.com/photos/nationaleyeinstitute/7544604758

Interpretation of these data for the educational team should be by a trained and certified teacher of the visually impaired. This information is crucial to

the development of an appropriate educational experience. If conditions warrant, further assessment should be obtained and considered by the multidisciplinary team.

In addition to a medical examination, a clinical low vision evaluation is necessary to determine if a student could benefit from other optical or nonoptical low vision devices. The low vision examination involves acuity tests, visual field testing for peripheral or central vision loss, and an interview with the individual to determine what he or she would like to do for work, school, or leisure activities. A personal prescription for low vision devices, technology, or referrals to community agencies is part of the low vision plan. If low vision devices cannot assist the student with reading, writing, or distant viewing, then Braille or auditory access may be recommended. The student's vision teacher can attend this evaluation and bring materials relevant to the scheduled daily activities. Examples of educational materials pertinent to the student with visual impairments are reading texts, technology adaptations, daily writing journals, workbooks, maps, and charts.

Figure 13.4 Ocular Report

Report From Eye Physician This report is to be used in educational planning						
Student name:	John Doe:				Age	10 years
Date of examination:	November 4, 2019				Physician name:	David Seebeter, MD
Visual acuity without Rx Visual acuity with Rx	Near: Near:	20/350 20/200	Far: Far:	20/400 20/400		
Current Rx:	Spectacles for protection only. UV sunglasses recommended.					
Diagnosis/etiology:	Affects:					
Retinopathy of prematurity	Central vision	___	Peripheral vision	X		
Prognosis:	Vision has been stable for the past year; return visit in one year for follow-up examination.					
Medication: Other treatment:	None None					
Low vision devices:	Near: Far:	Handheld magnifier—8x magnification; closed circuit TV Monocular telescope				
Technology needed:	Closed circuit TV, speech reader on computer, radio reading service, slow-speed tape recorder, talking watch, talking calculator					
Print size:	Large print Closed circuit TV/size print Bold line paper	___ X X	Self-adjust			
Braille	Braille Books on tape	X X	Braille should be considered for speed of reading and comprehension.			
Classroom modifications	Lighting Seating preference	___ X	Near teacher or class activity; special table for Brailler, CCTV			

Functional Vision Evaluation

Each child's ability to use vision is unique, and the ability to use what vision the child has (visual efficiency) may be improved through specific programs of instruction. An important element in planning an educational program for children with visual impairments is assessment of a student's present **functional vision**. In other words, an assessment is needed to see how well each student uses vision to complete a specific task.

> **functional vision** How well students use the vision they have to complete a specific task.

Because of the role that vision plays in the overall development of each child, a functional vision evaluation must be performed before all other educational evaluations. This is to ensure that each child will have access to the materials and equipment needed to participate and perform to the best of his or her abilities. Under the supervision of a teacher of students with visual impairments, each pupil must be observed in a variety of environments that occur throughout the student's daily routine. This observation must include the student performing various tasks that require both near and distant visual abilities. Observations should encompass both individual and group activities, including oral and silent reading groups, desk work, and board work. The functional vision evaluation should also include travel within the school environment—playground, restroom, music room, lunchroom, and physical education sites—as well as accessing modes of transportation (Zimmerman & Zebehazy, 2011). The evaluation should also include samples of the student's work and reports of activities in the home and community.

The functional vision evaluation is a collaborative effort of the educational team for purposes of program planning. Specific recommendations, accommodations, modifications, and intervention strategies for the student in all environments is based on a comprehensive evaluation. The team approach to the functional evaluation can provide a continuum of appropriate strategies in the educational and community settings.

Braille is usually the reading medium of choice for pupils who are totally blind.

iStock.com/Wavebreakmedia

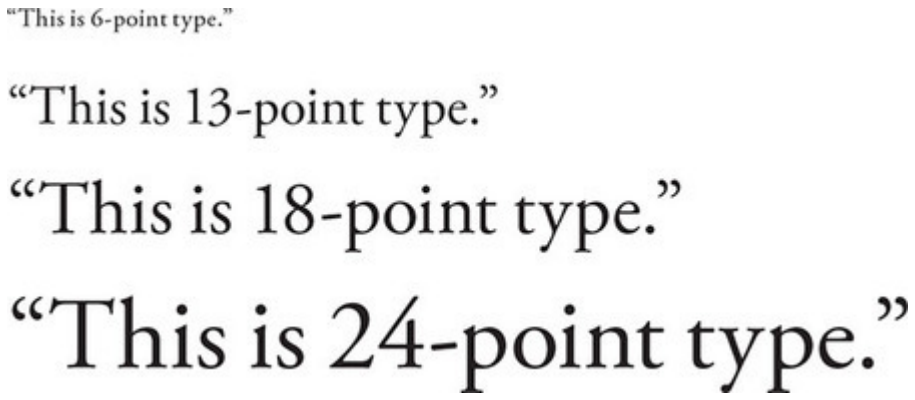
Learning Media

Another important component in the assessment process is to determine the most effective learning and literacy media. **Literacy medium** refers to sensory channels and is based on the student's preferred method of reading and writing—print, Braille, or both. Regardless of the level of vision a student has or whether the pupil has an additional disability, a learning media assessment must be conducted to determine the student's preferred mode of learning and literacy (Family Connect, 2019a).

> **literacy medium** The student's preferred method of reading and writing.

Learning media include the materials and methods a student uses in conjunction with the sensory channels in the process of learning. Visual learning media include pictures, videos, imitation, and demonstration. Tactual learning media include models, real objects, tactile symbols, and physical prompting. Auditory learning media include verbal communication, taped information, and environmental sounds (Family Connect, 2019a; Paths to Literacy, 2019). Assessment of listening speed and comprehension may be used to assess auditory media. Determination of print size is important so that the child with a visual impairment can readily use low vision devices prescribed for reading, writing, and leisure activities. A low vision specialist can inform the child and family about specific low vision devices, where to use them, and what size print is required for each device. The standard print sizes recommended range from 6 point, the size used in telephone directories, to 24 point, used in large-print texts.

> **learning media** The materials and methods a student uses in conjunction with the sensory channels in the process of learning.



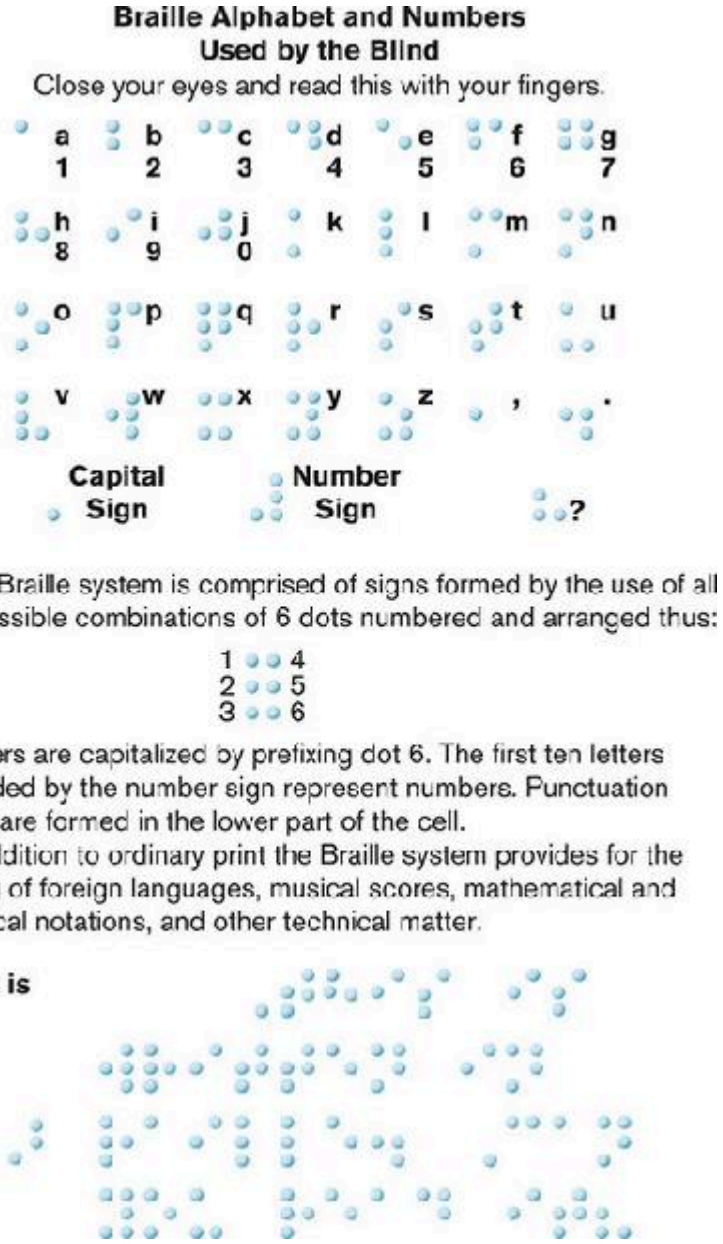
Braille as a literacy medium is used together with print and auditory input if the child has any residual vision. This enables the student to read print for survival skills, and to sign documents. An individual who is totally blind will use Braille and listening skills for input. Braille is addressed in the individualized education program (IEP) so that the child with a visual impairment will have ongoing consideration of Braille as a reading medium.

In January 2016, the Unified English Braille code (Braille Authority of North America, 2019) replaced the then current English Braille, American Edition as the literacy code of choice for individuals who are blind or have significant vision loss. Like its predecessor, Unified English Braille consists of patterns of six possible dots arranged in two columns of three (see Figure 13.5). The combination of dots indicates a certain letter of the alphabet. Each language has a Braille code that matches the letters in the alphabet of that language. The Unified English Braille code has two "grades." In **Grade 1 Braille** or uncontracted Braille, each letter of a word is spelled out using the Braille letter corresponding to the print letter. **Grade 2 Braille** or contracted Braille is made up of contractions representing parts of words or whole words, similar to print shorthand. The primers begin with words uncontracted so that the child learns the spelling of the word with Grade 1 and the whole word in a sentence with Grade 2. Many elevators and signs use Grade 2, because that is the standard for Braille readers. Examples of Grade 1 and Grade 2 Braille are presented in Figure 13.6.

Grade 1 Braille A beginning level of Braille in which a word is spelled out with a Braille letter corresponding to each printed letter.

Grade 2 Braille A more complex level of Braille in which contractions are used to represent parts of words or whole words.

Figure 13.5 Braille Card



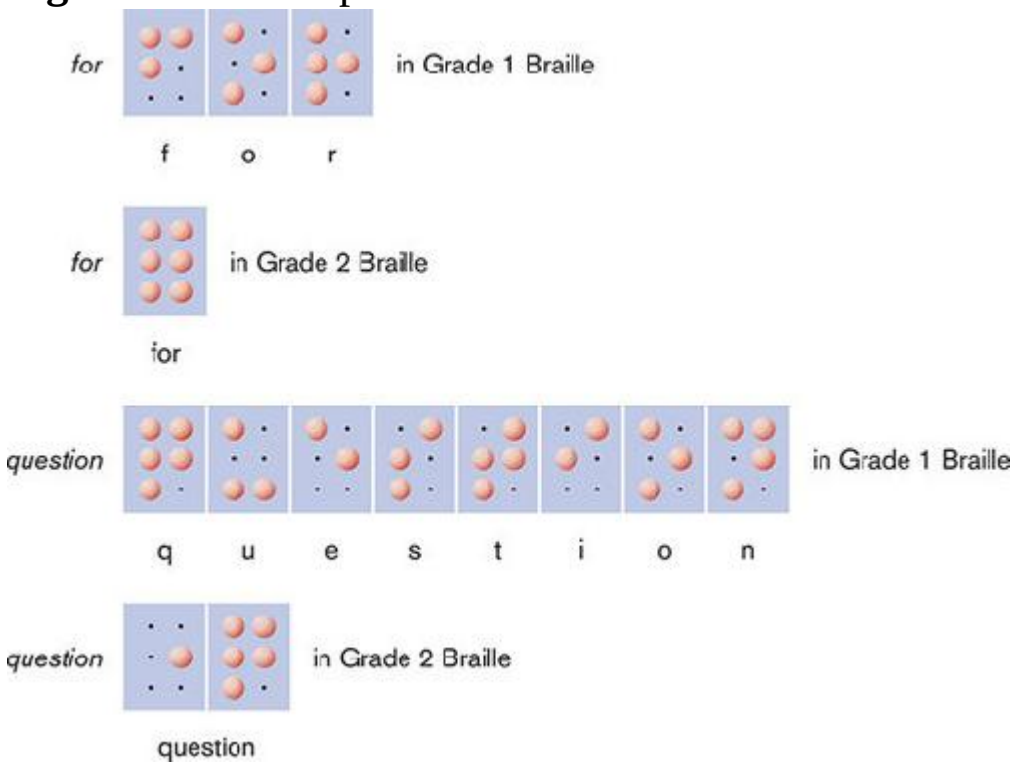
Source: American Printing House for the Blind, Inc., 1139 Frankfort Ave. Louisville, KY 40206.

Unfortunately, over the years, there has been a steady decline in Braille literacy rates among school-age children. Forty years ago, more than 50 percent of children read Braille; today, however, only 12 percent read Braille. Yet, research suggests that Braille helps students learn language and grammar as well as math and science (National Braille Press, 2019).

Educational Assessment and Program Planning

Appropriate assessment strategies are a prerequisite to effective teaching. Assessments can provide critical information on the ways in which various visual impairments can affect learning and the need for instructional adaptations. Many students with visual impairments have the same educational goals as other pupils and can often be successfully included in the general education classroom. Their educational assessments, however, are often adapted for accessibility via larger print, Braille, oral presentation, use of screen reading technology, or in some instances omission of items that test visual skills. The evaluation must measure the skills of the student using the accommodations with which the student is familiar so that the results will paint a true picture of academic functioning level.

Figure 13.6 Examples of Braille



Students who have a visual impairment also have unique educational needs and should be evaluated in these areas to determine the appropriate

educational placement and program. According to the American Foundation for the Blind (2019), formal assessments used to determine strategies and needs in particular areas of instruction may include the following:

- Basic academic skills
- Career/vocational skills
- Independent living skills
- Learning and literacy media
- Orientation and mobility skills
- Social interaction skills
- Use of assistive technology
- Verbal and nonverbal communication skills
- Visual efficiency skills

Eligibility Determination

Recall that to determine eligibility for special education because of a disability, the IEP team must base its decision on data from multiple sources. A functional vision evaluation and a learning media assessment should be part of the initial evaluation for individuals with visual impairments. However, a student with a visual disorder may not be eligible for or need specialized services if the disorder has no adverse effect on the student's educational progress.

Instructional planning requires a comprehensive assessment to establish current levels of performance. Using the information from multiple assessments, the team determines the student's current levels of performance and develops an IEP. In keeping with the requirements of IDEA, parents and students are informed and involved in all areas of the planning process.

The success of the IEP depends on selecting and using appropriate instruments that address issues or concerns relevant to the needs of the student with a visual impairment. This process may be completed by having appropriately trained personnel use both formal and informal assessment instruments. Few formal instruments are available, however, because children with visual impairments are diverse in age, background, and environmental influences, as well as in levels of visual abilities. Numerous factors, such as acuity, color blindness, age of onset, field vision restrictions, and other disabilities, affect a child's visual ability. Given the unique needs and diversity of these students, trained teachers of the visually impaired must be involved in the assessment process and the interpretation of test results.

Students with visual impairments are often capable of participating in standardized testing with needed accommodations (see Table 13.4). The validity and reliability of the assessment, however, may be compromised if too many accommodations are made. In reporting test results, any modifications or accommodations that were made should be recorded.

Many states require all students to participate in statewide testing programs, developed with specific guidelines and scores, to progress to the next grade or academic level. IDEA requires the IEP team to determine a student's participation in state- and districtwide assessment programs. The team must verify that the student is in need of accommodations in order to participate, or if the student will not participate, the team must state why the assessment is not appropriate and what alternate assessments will be used.

Computer testing is widely used in statewide assessments. Students who are blind may use screen reading software to read the test questions to them. Not all tests, however, are fully accessible. In some cases, a student may use a screen reader and Braille in order to access tactile graphics that are needed to complete the assessment.

Educational Considerations

Students with visual impairments require an educational plan to prepare for independent and productive lives. Educational goals delineate the needs of the child and the family. Appropriate accommodations allow for acquisition of information through incidental learning, observation and imitation, exploration, and social behavior.

Where Are Students With Visual Impairments Educated?

Both the passage of IDEA and policy statements from professional organizations and agencies reinforce the principle that in order to meet the unique needs of children with sensory impairments and help them become responsible and independent members of a fully integrated society, we must offer a full continuum of services. According to the U.S. Department of Education (2018), slightly more than two thirds of all students with visual impairments received services in the general education classroom during the 2016–2017 school year. Twelve percent of pupils with visual impairments were assigned to a resource room while approximately one in ten students were educated in a separate classroom (see Figure 13.7). The IEP team should determine the educational setting that is most appropriate for each student, keeping in mind current levels of academic, psychosocial, physical, and vocational functioning and the materials and instructional techniques that are successful with that child. (See the accompanying First Person feature, page 430.)

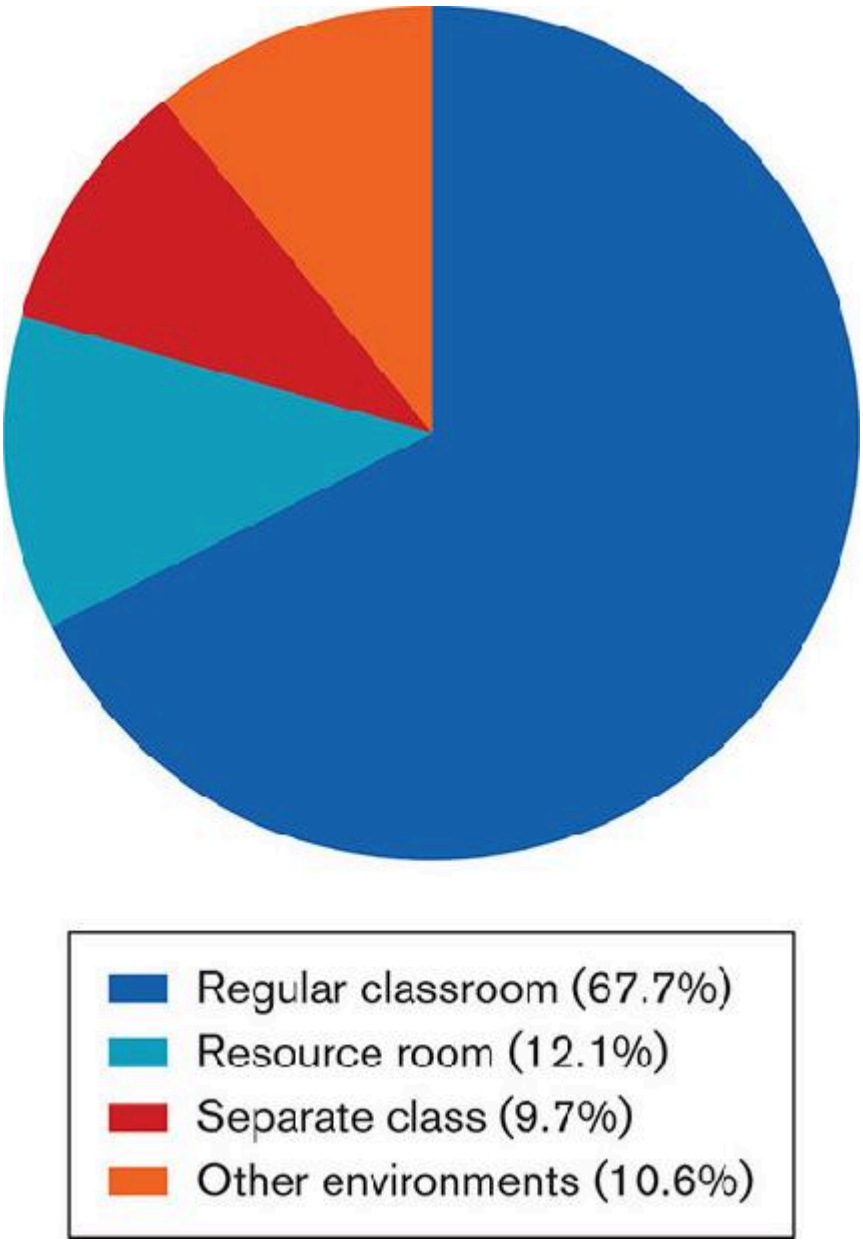
Table 13.4 Assessment Accommodations for Students With Visual Impairments

Table 13.4 Assessment Accommodations for Students With Visual Impairments

Proctor for Braille transcription (recording or transfer scores)
Large-print materials and tests
Oral presentation of materials (reader assistance for texts and other materials)
Assistive technology

Extended time limits (1.5 or twice the time is usually recognized for individuals with low vision or blindness)
Small-group or individual assessment
Preferred seating
Shorter periods of testing with rest breaks between sessions

Figure 13.7 Educational Placements of School-Age Students With Visual Impairments



Note: Figure represents percentage of enrollment of students ages 6–21 with visual impairments during the 2016–2017 school year. Other environments represent placement in a separate school, residential facility, homebound/hospital environment, correctional facilities, or parentally placed in private schools.

Information based on data from forty-nine states, the District of Columbia, Puerto Rico, Bureau of Indian Education schools, and outlying areas. Data for Wisconsin not included.

Source: U.S. Department of Education. (2018). *Fortieth annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2018.* Washington, DC: U.S. Government Printing Office.

Many students with visual impairments are able to participate in testing programs when appropriate modifications are made.

BSIP/Contributor/Getty Images

Instructional Considerations

Instructional goals for most students with visual impairments include communication skills, social competency, employability, and independence, in addition to academic progress (American Foundation for the Blind, 2019). The IEP team must decide how these goals will be accomplished. Often an array of low vision devices will be required, depending on the needs of the student. The team will have to decide whether the child requires materials to be read, enlarged, or put into Braille and whether low vision devices or technology such as an abacus or a talking calculator will be used.

First Person: Carrie The Face of “Different”

It was a bright sunny day outside. The kids were going out to play, but a few of us were staying inside. I started to draw after staring at a friend’s face. It was just a line with some curves. “That’s different,” remarked a classmate. “Wow, that’s really good,” said Mr. Tom. “Thank you,” I replied.

At that point, I realized that I was good at something and at the same time realized that there was something “different” about me. I was drawing someone’s face as if it were a silhouette. It was different from my classmates’ drawings. These words of encouragement and approval would have seemed small to most, but to a 6-year-old they were awesome. I was just drawing what I saw. How could that have been different from anyone else, or even that good?

I was born with oculocutaneous albinism, which is the lack of pigment in the eyes, the skin, and the hair. A common side effect is a visual impairment, but this varies in severity from one person to another. The idea of being visually impaired and able to draw astounded Mr. Tom. He was surprised by my ability to depict how I saw the world. I enjoyed arts and crafts time during elementary school and still amazed many teachers by this talent. It was as if I was redefining their perception of my abilities.

In second grade, there was a test to see how many addition problems we could solve correctly in two minutes. The teacher remarked that I would need extra time. Full of embarrassment, I wanted to prove her wrong. And I did. The same type of situation occurred in middle school. The challenge was reading maps for geography class. The maps were small with many black lines. “How is she going to do this with a visual

impairment?" many remarked. I could see shapes and color. So I colored them in and then labeled them as I studied. It made things more difficult and was a different approach, but it worked. The test came back with a 97, and I was excited.

There were many times that I needed to take a different approach in my study tactics. I was more successful in class with teachers who were open-minded or who accentuated my strengths and minimized my weaknesses. My senior year in high school I read the book *The Strange Case of Dr. Jekyll and Mr. Hyde* by Robert Louis Stevenson. Reading a novel was difficult because it took me longer to read than most students. I would feel discouraged and defeated, therefore losing motivation in the class. My teacher asked me to draw or paint how I envisioned the main characters, Dr. Jekyll and Mr. Hyde. The two characters are really one person but with a different look and contrasting personalities. She was pleased by the end result and distributed the grade on the ability to envision the description rather than the test alone.

There is not a map or a face that can guide and show a teacher how to educate a student with a visual impairment. I learned by doing and trying things by myself and with others. I was not the face of "different" as a child. Different is not a face to identify or a point to relate to; different is the line with curves between two points. Different is the process in which children as individuals learn, create, grow, and therefore succeed. It is the path and our attitude that depict our face. "We are all 'different,' and I thank you!"

—Carrie Willoughby

The vision-related needs of the pupil should be supported within the general education curriculum wherever appropriate. The need for direct, specialized services also varies throughout the child's education, depending on the goals of the educational program and the way in which these goals are met in the classroom. Table 13.5 describes some types of equipment that can be used to meet the needs of students with visual impairments in the general education classroom.

Individuals who are visually impaired should acquire compensatory skills and experiential learning by accessing the expanded core curriculum (American Foundation for the Blind, 2019). The expanded core curriculum is the body of knowledge and skills that are needed by pupils with visual impairments because of their unique disability-specific needs. Students who are visually impaired need the expanded core curriculum in addition to the core academic curriculum found in general education. The expanded core curriculum should be used as a framework for assessing pupils, planning individual goals, and providing instruction (American Foundation for the

Blind, 2019). Typical content of the expanded core curriculum includes, among other areas, the following:

- Assistive technology
- Career education
- Compensatory skills
- Independent living skills
- Orientation and mobility
- Recreation and leisure skills
- Social skills
- Self-determination

The expanded core curriculum essentially creates a parallel curriculum of disability-specific skills supplementary to the general education curriculum. The academic curriculum must be modified to meet the individual needs of each student so that progress is based on skill level and successful completion of expectations in each subject area. Specialized areas of the regular curriculum, such as art, music, and family and consumer sciences are also considered appropriate for pupils with visual impairments. Modifications and accommodations of lessons can often be achieved through the use of visual, auditory, or tactual experiences.

Adaptations of materials and the environment may be necessary to enable students who are visually impaired to participate in the educational program and derive maximum benefit from the experience (see Table 13.6). Adaptations may vary according to individual needs, which should be assessed before making special provisions available to the student.

Table 13.7 presents some general guidelines for working with students who have a visual impairment. These suggestions are offered using a “Do” and “Don’t” format.

Orientation and Mobility

Students with visual impairments require instruction in **orientation and mobility (O&M)**, which is a related service according to IDEA. Orientation is being aware of where you are, where you are going, and the route to get there. Mobility is moving from place to place. A child must be able to put the orientation and mobility together to travel independently. Orientation and mobility training includes sensory training, concept development, and motor development. A certified O&M specialist can evaluate the child's functional level and prescribe specific training. See the accompanying Strategies for Effective Teaching and Learning feature on page 434 for orientation and mobility tips for the general educator.

orientation and mobility (O&M) Systematic techniques to plan routes and move from place to place for persons with visual impairments.

A child must be empowered to negotiate the environment skillfully and confidently. Opportunities for exploration must be provided for good posture, good health, and flexible muscles. With confident movement, the child can achieve good self-esteem and master independent travel within the community.

Table 13.5 Examples of Expanded Common Core Curriculum-Specific Equipment

Table 13.5 Examples of Expanded Common Core Curriculum-Specific Equipment

Setting	Assistive Technology
Academics	Magnifiers, glasses, electronic magnification devices, Braille, bookstands, video, scanners, optical character recognition systems, screen reading software Word processing programs, slate and stylus, electronic spell-checkers, bold line writing paper, embossed

Setting	Assistive Technology
	writing paper, signature writing guides Abacus, scientific calculator, talking clock, Braille/print protractors and rulers, embossed and bold line grid pattern sheets, spreadsheet software Tactile globes, relief maps, Braille and large-print maps, tactile anatomy atlas, speech output devices such as thermometers and environmental controls
Leisure Time and Recreational Activities	Adapted games, large-print books, radio reading services, beeper balls, buzzers, wheelchair adapted for basketball and tennis play, lifts for swimming pools, adapted snow- and water-skiing equipment, descriptive video
Daily Living and Self-Help	Walkers, feeding adaptations, Braille labels, voice-activated switches, button switches, large-print telephone buttons, automatic thermostats, Braille calendars, electronic address books and calendars, magnifiers for hand sewing and sewing machines, electronic mobility devices, lifts for automobiles and chairs

Table 13.6 Environmental Adaptations for Students With Visual Impairments

Table 13.6 Environmental Adaptations for Students With Visual Impairments

	Lighting	Color and Contrast	Size and Distance	Time
What to observe	• Variety of lighting situations	• Contrast between	• Placement and size of objects at	• Time for completion of visual

	Lighting	Color and Contrast	Size and Distance	Time
	• Lighting at different times of day • Low vision devices used	object and background	near • Placement and size of objects at far	discrimination during tasks • Tactile tasks such as locker for books
What to use	• Light sensitivity: shades, visors, tinted glasses • Low light: lamp or illuminated low vision device • Room obstructions: preferential seating, furniture placement • Glare: nonglare surface on areas such as chalkboards, computer screens, desktop,	• Bold line paper • Black print on white background • Dark markers • One-sided writing on paper • Dark placemat for contrast during eating • Floor contrast for mobility ease • Tactile markings for outline	• Enlarged materials • Preferred seating • Electronic devices • Magnification • Optical character recognition • Adjustment of desks, tables, and chairs • Additional storage space for Braille, large-print	• Verbal cues for actions in classroom • Increased time for task completion • Calling student by name • Announcements when entering or leaving room • Encourage participation in demonstrations • Opportunity to observe materials prior to lesson • Authentic

	Lighting	Color and Contrast	Size and Distance	Time
	paper, maps, globes	discrimination • Contrast to define borders on walls	books, low vision devices near each workstation	manipulative objects • Schedule instructional time in early part of day • Convenient use and storage of materials • Lock and key is preferred over combination locker
Desired results	• Better posture • Greater concentration • Less fatigue	• Better visual efficiency • Less fatigue • Safer travel	• Ease of viewing • Appropriate adaptations for specific vision loss	• Less fatigue • Inclusion in class activities • Time efficiency

Table 13.7 Suggestions for Working With Students Who Are Visually Impaired

Table 13.7 Suggestions for Working With Students Who Are Visually Impaired

DO	DON’T

DO	DON’T
• Feel comfortable using vision words such as *look*, *see*, and *watch*.	• Be fearful of touching a student who is visually impaired. Be sure to tell the student, however, that you are about to touch him or her. Be respectful of the individual’s personal preference about being touched.
• Use the pupil’s name when addressing a student.	• Overprotect. Allow the pupil to attempt as many things as desired.
• Read aloud when writing on the board.	• Worry about personal feelings of awkwardness. A student with vision loss requires consistent directions.
• Encourage independence.	• Be afraid of having high expectations and demanding the pupil’s best work.
• Include the pupil in all class activities as feasible.	• Tolerate unacceptable behavior.
• Give explicit instructions.	
• Provide extra space for storage of equipment and specialized materials.	
• Encourage the use of supplementary	

DO	DON’T
devices when necessary.	

Source: Adapted from V. Bishop, *Teaching Visually Impaired Children*, 3rd ed. (Springfield, IL: Charles C Thomas, 2004), pp. 93–94.

Strategies for Effective Teaching and Learning
Accommodations for Students With Visual Impairments

Communication and accessibility are keys to providing an environment in which the student with visual impairments can realize his or her academic potential. Accommodations should provide the pupil with the ability to fully participate in the classroom as well as reduce the effects of the visual impairment. With the advent of iOS devices and computer applications, students are able to access materials in ways that were not readily available to them in the past.

Instructional Area	Accommodations
Reading	• Consult with the teacher of students with visual impairments on any optical devices the students may need to read printed materials. • Allow extra time for low vision readers, as they may experience eye fatigue. • Provide reading materials to the teacher of students with visual impairments in advance to be enlarged, scanned, Brailled, or recorded. • Textbooks and books commonly used in educational settings are available electronically. • Recreational books in recorded or Braille format can be ordered through the National Library Service for the Blind and Physically Handicapped (www.loc.gov/nls). This is a free service, but users must be registered before ordering. • Many local library systems have popular books available electronically.

Instructional Area	Accommodations
Writing	• Some pupils with low vision need dark, bold, or raised line paper for writing assignments. • Some individuals will need to use an electronic device for completing written assignments. • Braille readers may receive Braille assignments and transcribe them into print. • Some Braille readers use an electronic Braille note-taker for written assignments. The assignment is entered in Braille and then translated into a print copy for the classroom teacher.
Note-taking	• Students with visual impairments may take notes on their Brailler, electronic note-taker, or computer. • Any notes written on the board should be spoken aloud for the pupil who is visually impaired. • Students with visual impairments should be seated as close to an object or a display as possible. • Keep information in a visually simple and organized format for all students with visual perceptual difficulties. • Use high-contrast writing tools when using an overhead, a chalkboard, or a dry-erase board. • Use of a touch screen attached to the student's or the classroom computer can provide the individual with an accessible version of the notes. • Use of a touch screen with text conversion software allows the student to access the electronic version of the notes with a screen reading or voice output program.

Source: Adapted from *Visual Impairment* (Archival material), Georgia Department of Education, February 2002.

Making Inclusion Work
Individuals With Visual Impairments

During the spring of my senior year as an undergraduate student in elementary education, I was required to complete a twenty-four-hour practicum for a special education course. The site I chose was the North Dakota School for the Blind. After my experiences at the school, I realized that I was very interested in working with children who were blind and visually impaired. This led me to search for graduate programs in the field of blindness. I was fortunate enough to locate the vision program at the University of Alabama at Birmingham. From my first day in the program, I had the opportunity to work with children of varying degrees of visual impairment, as well as additional disabilities. After completing my master's degree, I worked as an itinerant teacher for the visually impaired in southwestern Iowa for four years and went on to become the state consultant for children with deaf-blindness. I then returned to graduate school and earned my doctorate at Iowa State University.

Inclusive Education Experience

Working with children with visual impairments and multiple disabilities is definitely challenging, yet very rewarding. This is especially true when working with general education teachers in inclusive settings. You have to have a starting point that everyone can agree upon, including acceptance of the child with special needs as a full member of the general education class and an understanding that the general education teacher is that child's full-time teacher—not the five other service providers who also work with the child once a week. If the individualized education program team can come to such an agreement, then everything else seems to fall into place. For example, it may be that a teacher of the visually impaired works with the general education teacher to adapt lessons by creating tactile materials or story boxes, or even works with the entire class by teaching a class lesson.

One of my more memorable teaching experiences was collaborating with a first-year teacher who was working with a kindergartener, Andrew, who had multiple disabilities, including deaf-blindness. I taught a cooking lesson to the class once a month, in order to model interacting with Andrew for the other children and adults in the classroom. This worked well for the kindergarten teacher because it incorporated math, reading, and social skills. It was a wonderful opportunity, however, for the other children to see that Andrew could be an active and important member of the class, as they worked in small groups to get to know him. By the end of the school year, the children were able to tell the adults what Andrew liked and disliked. The students also knew how to interact with Andrew so that he could respond to them with facial expressions and vocalizations.

Overall, as a teacher of the visually impaired, being able to work with the kindergarten class took extra time and preparation on my part. However, classrooms today are changing, as are the instructional expectations of both general education and special education teachers. It takes teamwork and collaboration to make programs work for children with special needs and to give them the best possible start to being active and contributing members of their community.

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Strategies for Effective Teaching and Learning
Orientation and Mobility Tips

- Eliminate unnecessary obstacles; inform the student of changes in room arrangement or of any temporary obstacles.
- Keep doors completely closed or completely open to eliminate the possibility of the student's running into a partially open door.
- Allow the student to travel with a companion to frequently used rooms such as the library, school office, restroom, and gym. Discuss routes with turns and landmarks.
- Allow the student to move about freely until the room and route are familiar.
- Encourage the use of a sighted guide for fire drills, field trips, assemblies, and seating in rooms that ordinarily have no assigned seats.
- Encourage independent travel in the familiar settings at school.

Source: Adapted from R. Craig and C. Howard, "Visual Impairment," in M. Hardman, M. Egan, and D. Landau (Eds.), *What Will We Do in the Morning?* (Dubuque, IA: W. C. Brown, 1981), p. 191.

Technology and Individuals With Visual Impairments

Advances in technology have provided opportunities for students with visual impairments to participate in educational programs on a level with sighted peers. After determining the individual needs of the pupil with a visual impairment through an assistive technology assessment, the educational team considers the array of specialized materials and equipment that allows the student full participation in the least restrictive environment. (See the accompanying Spotlight on Technology feature for examples of how assistive technology can support students with visual impairments.) Identification and use of these resources can make a notable difference in the educational program and future of the student with a visual impairment. In fact, under IDEA, Braille instruction—an important component of the educational program for individuals with vision loss—is required unless the IEP team determines it is not appropriate after evaluating the students (Mittler, 2007).

Technology plays a vital role in the lives of students who are visually impaired.

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Assistive technology can be introduced to children at a young age. Electronic Braille devices provide voice output and immediate access to

Braille for beginning Braille readers. Electronic note-taking devices with refreshable Braille displays give students access to the Internet, shared files, and Braille at the same time sighted peers have access to print. Technology common in many schools and classrooms, such as tablets and smartphones, can be used by individuals with visual impairments. Many of these devices have accessibility features built into their operating systems and can be accessed by anyone using the device.

Technology and Literacy

Technology plays an integral role in learning and all aspects of daily living, from literacy and mathematics to mobility to independent living. Students with visual impairments must have their technology needs assessed and recommendations made so that specialized equipment and devices are accessible in daily activities. Today, many children and young adults are learning to use various forms of technology despite their loss of vision. Table 13.8 illustrates some of the options available for persons who are visually impaired.

Each student needs to have the opportunity to access information according to his or her unique requirements. Accessing and correctly using appropriate technology is a developmental process that should result in providing these students with the ability to become as independent as their sighted peers. With appropriate assessment and training in technology, students who are blind or visually impaired can compete successfully in educational programs. To do so, however, these pupils must have access to various technology tools. For example, if a teacher assigns the class a book to read from an approved list and then to write a report, a student with a visual impairment may read this book through a digital text or eText, with his or her computer or other digital text reader (for example, iPad, Nook, or Kindle). The student could also elect to access the book via an audio recording from Learning Ally or Bookshare. Learning Ally (previously known as Recording for the Blind & Dyslexic) is a national educational library for people with print disabilities, including blindness and visual impairments. It provides audio textbooks along with reference and professional materials for people who cannot read standard print because of a disability. Similarly, Bookshare (2019), supported by the U.S. Department of Education, provides free accessible books to students in the United States who experience print disabilities. The student may type his or her report by using a standard keyboard or a Braille input device, or may dictate his or her paper through a speech or voice recognition program.

Table 13.8 Representative Literacy Technologies for Individuals With Visual Impairment

Table 13.8 Representative Literacy Technologies for Individuals With Visual Impairment

Method of Access	Device	Description
Braille embosser	Mountbatten Brailler	An electronic Braille embosser that translates text from a Braille keyboard to a printer
Braille translator	Duxbury Braille Translator	A software program that takes a computerized text file and converts and formats the document properly for printing
Braille writer	Perkins Brailler	A machine with keys corresponding to each of six dots of the Braille code to create all characters of the code
Optical character recognition (OCR)	Kurzweil 1000, OpenBook	A system that provides the capacity to scan printed text, have it spoken in synthetic speech, save it to a computer file, or render it in Braille
Synthetic speech	JAWS, Window-Eyes	Screen reading software that allows text to be converted to speech
Electronic magnification	Closed-circuit television	Hardware used to project magnified images onto a video

Method of Access	Device	Description
	(CCTV)	monitor
eText reader	QRead, Bookshare Web Reader	Accessible applications that read digital text

Spotlight on Technology

A variety of assistive technology tools exist to support students with visual impairments, from hardware to software and from tools to access information to ones to aid in navigation.

Technology Tool	Example
Adaptive hardware	• Refreshable Braille displays • Screen enlargement peripherals • Speech synthesizers • Braille embossers • Electronic note-takers • Braille input/output devices
Adaptive software	• Braille translation software • Screen readers (e.g., JAWS) • Screen magnification software (e.g., MAGic Professional) • Speech recognition software (e.g., Dragon NaturallySpeaking)
Adapted output systems	• Enhanced video systems (e.g., closed-circuit television) • Screen readers (e.g., JAWS, NaturalReader) • Refreshable Braille displays • Use of Braille printers • Use of optical character recognition systems (e.g., ReadingPen, Kurzweil 1000)

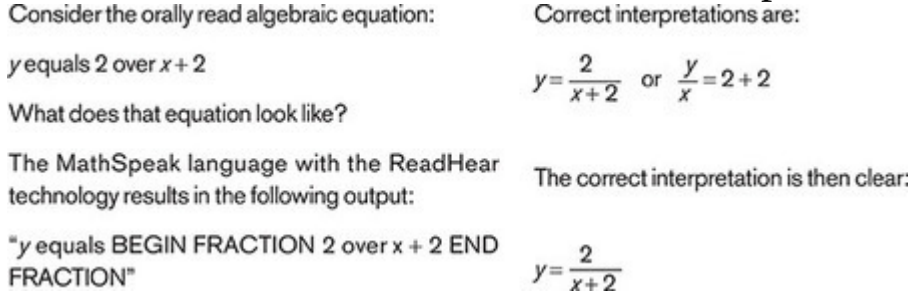
Technology Tool	Example
Adapted input systems	• Braille input devices • Use of speech recognition systems (e.g., Dragon NaturallySpeaking)
Global positioning systems (GPS)	• Portable travel tools (e.g., BrailleNote GPS, Trekker Breeze GPS) that permit individuals the freedom to independently navigate their environment

Source: Adapted from J. Gense and M. Gense, "Using Assistive Technology for Learners Who Are Blind or Visually Impaired," in Pennsylvania College of Optometry (Eds.), *Increasing Literacy Levels: Final Report* (Starkville: Mississippi State University Rehabilitation Research & Training Center on Blindness and Low Vision, 1997).

Technology and Mathematics

While multiple options are available for helping students with visual impairment access written material, mathematics, especially advanced mathematics such as algebra, can present challenges. Sometimes typical options for accessing standard text such as scanned textbooks, audiobooks, eText, and even Braille have difficulty with mathematical language. Some of these obstacles include ambiguity, poor translations, and pacing (Bouck & Meyer, 2012; Isaacson, Schleppenbach, & Lloyd, 2010/2011). Digital talking book players with specialized language provide one solution to these problems. Figure 13.8 illustrates an example of the ambiguity that can occur with mathematics. Tactile graphics is one solution that can support the acquisition of mathematical content by students with visual impairments.

Figure 13.8 Algebraic Ambiguity and Technological Resolution for Students With Visual Impairments


Consider the orally read algebraic equation:
y equals 2 over x + 2
What does that equation look like?
The MathSpeak language with the ReadHear technology results in the following output:
"y equals BEGIN FRACTION 2 over x + 2 END FRACTION"
Correct interpretations are:
y = 2/(x+2) or y/x = 2 + 2
The correct interpretation is then clear:
y = 2/(x+2)

Mobile Computing Devices

Mobile computing devices are growing in popularity with students with visual impairments, and increasingly standardly equipped with accessibility features. For example, the operating system (iOS) for iPhones and iPads has a built-in screen reader, speech-to-text (dictation), text-to-speech, and zooming capabilities. In addition, colors can be inverted, and text can be enlarged. Finally, Braille displays can be used with iOS devices (Apple, 2019). Besides the devices' own features, apps can be installed on mobile computing devices to assist students with visual impairments with various facets of life, including mobility and orientation—critical curriculum for students with visual impairments.

Technology Competency

In many public and residential schools, competence with computers and other types of technology is a prerequisite skill for accessing the academic curriculum and attainment of grade-level academic standards. Because computer technology must often be adapted for students with visual impairments, a computer proficiency requirement is frequently a part of an IEP. A teacher of the visually impaired assists with classroom accommodations and training while the general education curriculum is implemented. The vision specialist also needs to be knowledgeable about changing technology necessary to ensure meaningful participation in the general education classroom (Johnson, 2003).

Based on assessment information about the student's desires and needs in the classroom and community, an individualized technology plan can be designed for each pupil. To ensure that the individualized plan is thorough and up-to-date, an assistive technology team should develop a blueprint for the student's program (Family Connect, 2019c). Team members typically include the following persons:

- Eye care professional
- General education teacher
- Occupational therapist
- Orientation and mobility specialist
- Parent or primary caregiver
- Physical therapist
- Product vendors
- Rehabilitation specialist
- Student
- Technology specialist
- Vision teacher

Young Children With Visual Impairments

The focus in early childhood education is not only on visual and auditory tasks, but also on the whole realm of developmental skills that must be taught, with modifications, to the child with visual impairments. These basic readiness skills should be integrated for age-appropriate cognitive development:

- Compensatory skill development
- Expressive language development
- Fine motor development
- Gross motor development
- Receptive language development
- Self-help development
- Sensory development
- Social development

The early intervention team can assist the family with activities that stimulate each of the developmental areas. Children are referred through state child-find activities, physicians, and other agencies to early intervention services, which are available for children from birth to age 3. Services are provided according to the student's individualized family service plan (IFSP), with the child receiving services recommended by the specialists on the team. The specialists who work with the child and family act as consultants, and some may provide direct services. Intervention may be offered in the child's home, child care settings, or other "natural" environments (Gargiulo & Kilgo, 2020).

At age 3, the child will likely transition to an integrated early childhood program offered in his or her community. A well-designed transition plan includes planning with school administrators, general educators, parents or other caregivers, and related services personnel in support of the move. The service coordinator along with a vision specialist will collaborate with team members in constructing the student's IEP. This will ensure that the receiving teacher knows about the child's eye condition, educational

progress, and goals for the future. Age-related needs that should be addressed by the team when designing a transition plan include expanded core curriculum skills, including orientation and mobility, low vision devices, educational activities, access to materials in appropriate learning media, and leisure activities. Other services that the IEP team should consider include the following:

- Access to an equipment resource center
- Activities of daily living/self-help skills
- Assistive technology
- Community education
- Low vision examination
- Reader services
- Transcription services

Transition Into Adulthood

IDEA mandates that an individualized education program include a transition plan for adolescents with disabilities. A transition plan must be designed no later than age 16 and reviewed at least annually. Best practice suggests that a full range of options, services, and supports be explored by the IEP team. The student's preferences and vision for his or her future along with meaningful family involvement and input from professionals are integral components of a successful transition plan.

The goals for adolescents and young adults with a visual impairment often include vocational choices, postsecondary educational opportunities, travel skills, the use of technology, reading options, community participation, activities of daily living, independence on the job, and the acquisition of social/interpersonal skills among other critical areas. The wide spectrum of individual needs typically defines the goals for the young adult.

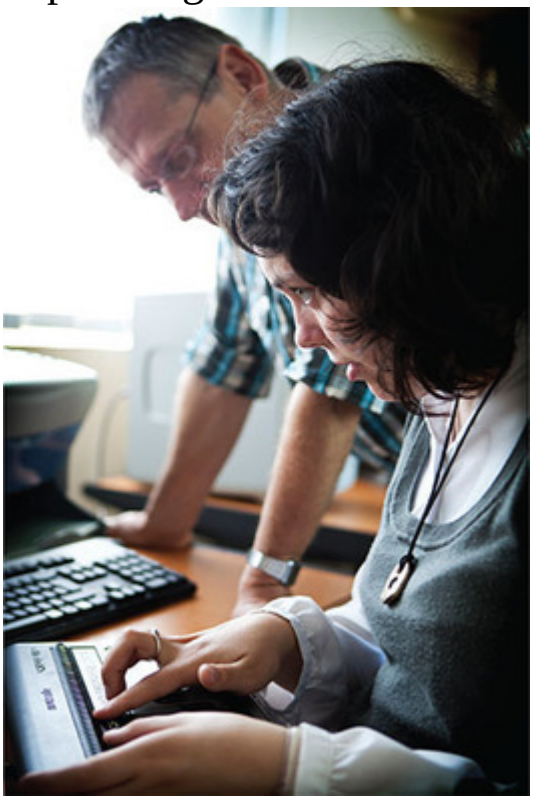
Planning transition of a student into higher education or vocational programs involves assessing the individual's level of functioning. The transition team, including the family, must be familiar with and prepared to respond to the adolescent's strengths and needs with respect to functional domains such as cognitive, social, and daily living skills. Professionals, in conjunction with the student and his or her family, also need to identify the specific community resources needed to assist the young adult in preparing for life after school. This mapping for the future should include information about postsecondary educational opportunities as well as vocational, recreational, and independent living options (Willings, 2019).

The goal of transition to adulthood is success in the community. Success is measured by the young adult, the family, and the employer. Continuous observation of a student's performance is an integral part of educational and vocational training. These observations and reported skills or behaviors enable a college and career habilitation plan to be designed and regularly updated.

Adults With Visual Impairments

Adults with visual impairments are often isolated from peers in the community. Some of the specific needs of adults with visual impairments are transportation, low vision evaluation and prescription, technology support, social opportunities, and orientation and mobility training. Without leisure and work support, successful integration into the community becomes difficult. Adults should have access to radio reading services, auditory books, low vision devices, assistive technology, leisure activities, and other community support. Adults who have a vision loss late in life are often dramatically affected. In some instances, loss of self-esteem, depression, and loneliness are typical consequences. Community information and referral systems, however, can make a difference for the adult with a visual impairment.

Vocational training is an important component of transitional planning for adolescents who are visually impaired.



Amelie-Benoist/Corbis/Getty Images

The adult who has a vision loss will often need job training accommodations, transportation to the workplace, and possibly housing near the job site. The accommodations should be individualized, match the job description and responsibilities, and be appropriate for a person with a vision loss. Some job descriptions specify the visual acuity needed for the job, and some include options for vision loss adaptations.

An individual with a vision loss that occurs in adulthood usually has job skills that were learned prior to the loss. In this case, the individual can assist the employer with reasonable adaptations to the work area. If the job requires good vision, the worker may have to compete for another job within the agency or in the community. Sometimes the person with a visual impairment will need to obtain job training through the state vocational rehabilitation services.

The adult with vision loss should be independent within the workplace unless the setting is a sheltered workshop or another specialized work environment. Independence can be achieved through training with low vision devices, orientation and mobility training, job coaching to help find areas of the job where modifications must be made, and reasonable changes to the workstation to accommodate the person with a vision loss. Still, despite all of these preparations, only about 45 percent of working-age adults with a vision loss are employed (Erickson, Lee, & von Schrader, 2018).

Family Issues

Families of persons with visual impairments face issues that are directly related to the independence of the family member with a vision loss. If a child is born with a visual impairment, the parents and other family members confront issues at every developmental age level. The family of the infant and toddler must address the nature of the visual impairment, the services available for the family, and the educational needs of the youngster during the early developmental years. As the child enters school, the family often becomes a partner in educational planning and the primary source of leisure activities. As the child begins to participate in school and interact with classmates, the family role often changes to that of an advocate supporting the needs of children with visual impairment.

If a person loses vision in adolescence, issues related to the teen years begin the family advocacy process. Secondary special educators and families frequently work together on independent living, postsecondary education, employment options, and linkages with adult services. Issues such as accepting that a person will not obtain a driver's license and may encounter difficulty with employment, dating, or entry to postsecondary education are typical concerns of most families. If the person with a vision loss is an adult, employment, mobility, independence, and community living are some of the areas of concern.

The family is the core community for the person with vision loss and frequently assumes an advocacy role. Advocacy for persons with visual impairment is provided through parent organizations, service agencies, and professional organizations. As a field, special education has a long and rich history of advocacy for individuals with disabilities. Professionals as well as families work together as a voice for persons with special needs. Families and persons with visual impairments advocate for educational and vocational needs and help to implement needed legislation.

Parent and professional organizations, support groups, and advocacy groups can provide information about local and national resources for families. The

benefit of parent groups is that families within a community join hands to learn from and offer support to one another. These support groups also serve as a resource for educators, rehabilitation professionals, employers, and legislators on issues affecting persons with visual impairments.

Issues of Diversity

In planning the educational program for the student with visual impairments, the team must have an appreciation and understanding of cultural diversity. Some groups may have a greater susceptibility to eye diseases such as glaucoma or diabetes; other cultures may have diets that cause eye disease specific to vitamin deficiency. Visual impairments appear to be more likely among children who are Native Hawaiian or Other Pacific Islanders (U.S. Department of Education, 2018) while vision loss is more common in adults who are American Indian or Alaska Native (National Federation of the Blind, 2019). Furthermore, children from low socioeconomic communities tend to have less access to medical intervention. Eye care may be difficult to obtain, and issues of cost or availability may prevent follow-up on medications.

A diversity of backgrounds often means a diversity of skills. Diversity issues for children with visual impairments are multifaceted because of the many eye diseases, different ages of onset, and accommodations that are needed for the student to succeed. Educational plans should address cultural and linguistic differences and how the family and school personnel can work together to achieve the goals for the child. Diversity issues must be recognized prior to assessments and evaluations so that eligibility and placement will be appropriate for the child.

Language difference may present problems in assessment and placement, as well as in program progress. Ongoing family and school communication may become a problem if the language barrier is not considered in each aspect of the educational plan. Cultures and customs may create barriers for educational planning in social skills and in orientation and mobility. In some cultures, conversation is face-to-face, and it is considered impolite to walk while conversing. This could be a problem for the child and the family when learning orientation and mobility.

Integration of skills such as Braille into the home may be difficult if the family does not understand the reasons for or mechanism of certain

activities. On the other hand, if the parents also have a visual impairment, they may require Braille or large print for written documents and may also need translation into the family's native language. Either situation must be addressed as a diversity issue demanding sensitivity and cooperation of all parties who have an interest in the child.

Trends, Issues, and Controversies

Trends, issues, and controversies directly affecting children with visual impairments include teacher shortages, access to certified orientation and mobility specialists, number of students assigned to teachers of the visually impaired, reading and literacy media assessment, and vocational training. Issues and trends, as well as controversies, are addressed by professional groups such as the Council for Exceptional Children Division on Visual Impairments and Deafblindness, the Association for Education and Rehabilitation of the Blind and Visually Impaired, the National Association of State Directors of Special Education, and the American Foundation for the Blind. Consumer groups such as the National Federation of the Blind and the American Council of the Blind address issues from the perspective of the person with a visual impairment. These groups work to address these issues with the U.S. Department of Education, special educators, university faculty, and local and state directors of special education.

Advances in technology have provided opportunities for students with visual impairments to participate in educational programs on a level with sighted peers.

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The profound teacher shortage in the field of visual impairment is an issue affecting all school districts in the United States. Only about two dozen

colleges and universities have the necessary resources to prepare educators for a profession that serves a relatively small number of students (Texas School for the Blind and Visually Impaired, 2019b); consequently, there are few graduates from these specialized programs. Many of these individuals seek employment in large, urban school districts. As a result, rural parts of the United States, with smaller school districts and fewer students with visual impairments, often lack certified teachers.

Just as there is a shortage of teachers of the visually impaired, there is also a shortage of orientation and mobility specialists (Zebehazy & Lawson, 2017). IDEA requires mobility evaluation and education for children with special needs. With only a small number of universities training orientation and mobility professionals, the need for these specialists by public and residential schools continues to grow. As a result, these services are often lacking, especially in rural areas. Since orientation and mobility instructors are not usually educators, they are hired in the same category as related service personnel and, therefore, are costly for school districts. O&M specialists typically serve all students with visual impairments in the district.

The caseloads of teachers of the visually impaired as well as orientation and mobility specialists continue to grow because of the shortage of qualified professionals (Zebehazy & Lawson, 2017). Larger caseloads affect the number of hours available to fulfill the IEP requirements for each child. When a teacher has twenty or more pupils distributed in general education classrooms across several different schools, time for travel and planning detracts from actual class time with the students. A reduction in caseloads would enable teachers to fulfill IEP goals with more stable outcomes.

Recommendations for reading and literacy media require a team approach based on the physician’s and the teacher’s educational recommendations. Reading media assessment is necessary to determine the appropriate low vision devices, enlargements, technology, or Braille use for each student. Some students need large print, others may require magnification or Braille, and still others use recorded books. IDEA requires that the use of Braille be assessed in each student’s IEP. Appropriate assessments of reading and

writing media needs are limited. Teachers often use observations, work samples, and physician suggestions to validate learning media needs because functional levels are important for daily needs. With few certified teachers, it is difficult to provide this assessment for all students who are visually impaired.

Issues of transition center on evaluation and prognosis, vocational preparation, and how outcomes will be measured. Independence of students as they move into higher education or vocational training is a responsibility of the school and family and is often a problem with transition into the community. Because so many jobs require vision to complete the task, job training and higher education choices are sometimes difficult to select and implement. Issues of community support also affect the successful outcomes of transition plans. School representatives and families must construct a life plan with the student so that the benchmarks for success are attainable and reasonable and provide a meaningful and independent life of quality.

Chapter in Review

Defining Visual Impairments (Learning Objective 13.1)

- The educational definition of *visual impairment* is vision impairment that, even with correction, adversely affects an individual's educational performance.
- The definition includes both visual impairments and blindness.

The Eye and How It Works (Learning Objective 13.2)

- Light enters the eye first through the clear, transparent area in front of the eye known as the cornea and passes through the other structures to the retina.
- In the retina, light impulses are changed into electrical signals and travel along the optic nerve and back to the occipital lobe of the brain, which interprets the electrical signals as visual images.

Visual Impairments in Children (Learning Objective 13.3)

- The most common visual impairments affecting school-age children are cataracts, glaucoma, optic nerve atrophy, myopia, albinism, eye injury, and retinopathy of prematurity (ROP).
- Visual impairment is one of the least prevalent disabilities, accounting for only 0.4 percent of pupils with a disability who are receiving a special education.

Historical Perspectives (Learning Objective 13.4)

- Braille was developed in the 1800s.
- At one time, residential schools for students with visual impairments were very common in the United States.
- In the 1970s, public schools began serving a growing number of pupils with visual impairments.

Etiology of Visual Impairments (Learning Objective 13.5)

- If the cornea is damaged through trauma or disease, then the inner area may become infected, which could result in permanent visual impairment.
- Glaucoma is the major disease that occurs in the aqueous humor. This may result in a loss of visual acuity as well as a loss in the visual field.
- If the iris is malformed, the function of light control will be interrupted, and the child can become photophobic (sensitive to light).
- Cataracts are lenses that are opaque or cloudy due to trauma or age. Children with congenital cataracts often have the cataracts removed.
- Macular degeneration is a common eye disease in adults, but it may also occur in young people.
- Rods and cones are photoreceptive cells found in the retina.
- If a youngster has retinopathy of prematurity (ROP), vascular growth has been interrupted by premature birth.
- Retinitis pigmentosa is a hereditary condition involving gradual degeneration of the retina.

Characteristics of Individuals With Visual Impairments (Learning Objective 13.6)

- Academic delays are not uncommon in students with visual impairments.
- Socially appropriate behaviors must be intentionally taught.
- Some individuals with visual impairments exhibit stereotypic behaviors known as blindisms.
- Independent and safe travel often requires training in orientation and mobility.

Assessment of Students With Visual Impairments (Learning Objectives 13.7 and 13.8)

- The acuity chart that is most often used for testing and reporting vision loss is the Snellen chart.
- An important first step in planning an educational program for a child with a visual impairment is to assess the pupil's present functional vision.
- Another important component in the assessment process is to determine the most effective learning and literacy media.
- Braille is used as a literacy medium along with print and auditory input if the child has any residual vision.

Educational Considerations (Learning Objective 13.9)

- Almost seven out of ten pupils with visual impairments are served in the general education classroom.
- Many students with visual impairments have the same education goals as other pupils.
- Instructional goals for most students with visual impairment include communication skills, social competency, employability, and independence, in addition to academic progress.
- Students with visual impairments may also require instruction in orientation and mobility.

Technology and Individuals With Visual Impairments (Learning Objective 13.10)

- With appropriate assessment and training in technology, students who are blind or visually impaired can compete successfully in educational programs.
- Technology plays an integral role in learning and all aspects of daily living, from literacy to mobility to independent living.

Educational Services Across the Life Span (Learning Objective 13.11)

- Early intervention is crucial for the development of age-appropriate skills.
- Transition planning for the adolescent with visual impairments typically involves vocational and educational opportunities, travel skills, and activities of daily living in addition to acquiring social and interpersonal skills among other goals.
- Leisure and work support is vital for community integration of adults with a vision loss.

Study Questions

1. What is the legal definition of *blindness*? How does it differ from the IDEA definition?
2. What does the Snellen chart assess? What does 20/200 mean?
3. Describe how the eye functions.
4. Define the terms *myopia*, *hyperopia*, and *astigmatism*.
5. List five eye problems common to school-age children.
6. Why is early detection of vision problems important?
7. Describe the social and emotional characteristics of persons with visual impairments.
8. What is functional vision, and how is it evaluated?
9. Define the term *learning media*. Give three examples of different forms of learning media.
10. In what two educational settings do the majority of students with a visual impairment receive a special education?
11. What are some common educational accommodations that a student with a visual impairment may require?
12. List five signs of possible vision problems in children.
13. Identify three critical issues that must be addressed if an adolescent is to successfully transition to postsecondary education or enter the workforce.
14. Besides cultural differences, what diversity issue must be addressed for parents who are also visually impaired?
15. Identify five technology accommodations that can be provided in high school for a student who is legally blind.
16. Discuss the shortage of orientation and mobility specialists and how a child's educational plan is affected by a shortage of personnel.

Key Terms

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Learning Activities

1. Spend a day traveling with an itinerant teacher of the visually impaired. Describe the types of instruction this professional provided for one or two of the pupils. What IEP goals were addressed? How was technology used to adapt the general education curriculum? How did classmates relate to the child with a visual impairment? What type of assistance did the vision specialist offer to the general educator? What problems or difficulties, if any, did you observe? Write a summary of your experience and share it with your classmates.
2. Search the internet for information about the following three educational tools: electronic Braillers, screen readers, and optical character recognition systems. Develop IEP goals and accompanying benchmarks for a secondary student who is legally blind and preparing to transition to a community college. How will this equipment be used to assist the adolescent in adapting to the general education curriculum? What individuals should be involved in planning the transition experience?
3. Interview an adult with a visual impairment. Find out about the type and age of onset of the vision loss. Ask about personal and family reactions to the loss of vision. What type of low vision devices or technology does this individual use on a daily basis? If possible, identify any adjustment concerns about independence, mobility, vocational and career issues, community involvement, and personal relationships. Share your impressions of this interview with your fellow students.
4. Travel with an orientation and mobility specialist and observe the training of a person with a visual impairment. What type of equipment was used? What travel techniques were addressed during the lesson? How did the orientation and mobility specialist evaluate the individual? Ask if you can use the various devices. How did it feel to navigate about the environment while simulating a visual impairment?

Organizations Concerned With Visual Impairments

American Council of the Blind

www.acb.org

American Foundation for the Blind

www.afb.org

American Printing House for the Blind

www.aph.org

Division on Visual Impairments and Deafblindness, Council for Exceptional Children

www.community.cec.sped.org/dvi/home

Learning Ally

www.learningally.org

National Braille Press

www.nbp.org

National Federation of the Blind

www.nfb.org

National Library Service for the Blind and Physically Handicapped

www.loc.gov/nls

The Seeing Eye

www.seeingeye.org

Reflecting on Standards

The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Learning Environments (CEC Initial Preparation Standard 2.1)

Reflect on what you have learned about accommodations needed for students with visual impairments. If you were developing a reading program for your class and you had a student in your class with a visual impairment, in what ways might you modify your instruction to take into account all of your students' learning needs? How might you need to integrate assistive technology into your instruction?

Focus on Instructional Planning and Strategies (CEC Initial Preparation Standard 5.4)

Reflect on what you have learned about students with visual impairments. If you were to have a student in your class with a visual impairment, how might you help him or her develop increased independence? How might you modify your classroom or your teaching strategies to create an environment where a student with visual impairments would feel comfortable? How might your other students assist you in creating this type of environment?

Student Study Site

Sharpen your skills with SAGE edge at **edge.sagepub.com/gargiulo7e**. SAGE edge for students provides a personalized approach to help you accomplish your coursework goals in an easy-to-use learning environment.

14 Individuals With Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities

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Learning Objectives

After reading Chapter 14, you should be able to:

14.1 **List** the conditions associated with physical disabilities and health disabilities.
14.2 **Identify** low-incidence disabilities.
14.3 **Define** deaf-blindness.
14.4 **Summarize** society's reaction to and treatment of persons with physical or health impairments.
14.5 **List** examples of common causes of physical disabilities and health impairments.
14.6 **Identify** representative conditions associated with orthopedic impairments, multiple disabilities, traumatic brain injury, other health impairments, and deaf-blindness.
14.7 **Describe** the impact of a physical or health impairment on school performance.
14.8 **Explain** the procedures that teachers and other professionals use to meet the educational needs of students with physical/health disabilities and deaf-blindness.
14.9 **Describe** how technology benefits individuals with physical or health disabilities.
14.10 **Summarize** educational services for individuals with physical or health impairments across the life span.

Natalie's Story

Natalie is an amazing young lady who has exceeded most of the expectations of those who made assumptions based on her "labels" and therefore had lowered expectations for her. Fortunately, she did not live down to their expectations! Natalie has cerebral palsy (severe spastic quadriplegic and athetoid) with poor head and trunk control and only some limited use of her left hand and arm. She has undetermined visual acuity, has a questionable degree of intellectual disability, used to have seizures of varying types, and has a feeding tube for most of her nutrition and caloric intake. She has had braces, splints, eye patching, and numerous surgeries (including spinal fusion).

Although Natalie is nonverbal, she can make approximately 30 words or sounds (that can mean up to 200 different things, depending on the context or situation), and she uses an electronic augmentative communication device. Using a combination of two to four symbols, she can say approximately 1,500 sentences, 300 words, and 100 names!

Natalie is our third of three girls. She was born five to six weeks premature. She was bluish-gray at birth, indicating a lack of oxygen, and had facial bruising, indicating a traumatic birth (face presentation). So she had the three leading causes of cerebral palsy going against her! She was diagnosed at 6 and a half months. She started therapy at 8 and a half months. At 6 and a half years, Natalie was given her first psychological test, which indicated an IQ of 65. Natalie was to be educated as if she had potential for normal

intelligence, and she started school in an academically based class for students with orthopedic impairments.

Our family had to move, and it was then "determined" that Natalie would be placed in a self-contained, center-based class for students with severe intellectual disability because all of the therapies were conveniently located there. I, of course, objected. We were told that she wouldn't really "fit" into the orthopedically impaired program, as those kids were more "advanced." (Please note that the terms *convenient* and *fit into* seem in direct contradiction to what is stated for an IEP, or individualized education program.)

For two years at the upper elementary school level, we were fortunate to have a teacher who, despite the label of severe intellectual disability, knew Natalie had capabilities and academic potential. This teacher's philosophy was that if Natalie was having a problem with something, it was not that Natalie couldn't learn it, but more likely that she just needed to change her approach. She worked with sight words and numbers and picture boards that increased in complexity as Natalie became proficient using them. As Natalie's skills developed, we started our search for the "right" augmentative communication device. After a yearlong assessment, we found the ideal augmentative communication device for Natalie, a Touch Talker. Within six months, I had programmed two thirds of what is currently in her device. People began to see Natalie in a totally different way and to recognize her intelligence and humor and emotions, and lots of frustrations. They began to relate to her in a totally different way—all because she could finally communicate!

Natalie's label changed, and she was moved from the severe intellectual disability class into a moderate intellectual disability class in a public middle school. We tried again for placement in an orthopedic impairments class, and were again denied.

Finally, she was placed into an orthopedically impaired class her last year of middle school. It was probably her best year for academic learning, as she worked one-on-one on her individual goals, but also was part of group learning. She thrived in the group setting, and quite often had to be reprimanded for answering other students' questions!

Unfortunately, inclusion in high school, with the opportunity to go into general education classes, did not work for Natalie—it came too late. We tried, but it's a little hard to start with high school curriculum when you haven't had the basics! She was, for the most part, in a self-contained orthopedically impaired class for her last seven years. Her teacher involved peer tutors in much of Natalie's program, which was very motivating for Natalie and gave her the opportunity to make friends. It was kind of like bringing inclusion to Natalie. They definitely were a benefit to her, both socially and academically.

Transition planning for Natalie was a challenge because of the severity of Natalie's disabilities and the lack of experience with this type of student. We stressed the need to develop assertiveness, as Natalie—like so many folks with disabilities—was too often passive in situations that were not to her liking, but there was no such program. We encouraged goals based on our vision for Natalie's future, which was living and working in the community with supports.

Through school, she did participate in community-based vocational training and worked in several locations. Although these were not jobs that she could actually do independently, they did offer an opportunity to work on her communication and mobility goals. And she brought an awareness to those stores—and the community that frequented them—of the possibility that a person with severe disabilities could work, wanted to work, and was excited about it!

One of our proudest moments was when Natalie received a standing ovation as she graduated from high school, and there have been many proud moments since. Natalie has had two paying jobs. She lives in her own home with a roommate and a live-in care provider. She is working on understanding and accepting more independence each day. She has given many presentations to community groups and is an active advocate for people who can't speak for themselves.

Through the years, Natalie has been blessed by many wonderful teachers, aides, therapists, and specialists who gave so much of themselves for her benefit. I hope that they will someday realize the impact that each one of them has had, individually and collectively, on Natalie and—through her—on the community as a whole. Natalie is an inspiration, and a wonderful example of what can be!

—*Beth Tumlin*

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Although there are comparatively small numbers of students served in special education for physical or health disabilities, these pupils make up one of the most diverse groups of learners. Students with physical disabilities may range from those with severe physical limitations resulting in an inability to talk, walk, point, or make any purposeful movement to students with only fine motor difficulties that impact handwriting. Individuals with health disabilities may range from those with health problems so severe they must receive services at home to children with hidden medical conditions that require numerous daily medications. In addition, there are several **low-incidence disabilities** that can include physical or health disabilities, such as traumatic brain injury, deaf-blindness, and multiple disabilities. The term *low-incidence* generally refers to a disability that occurs infrequently. In fact, children who exhibit these three impairments account for only about 2.5 percent of all students receiving a special education (U.S. Department of Education, 2018). What

places all of these students together in this chapter is that they frequently share some dimension or aspect of physical or health impairments.

low-incidence disability A special education category representative of students with disabilities that occur relatively infrequently.

At the beginning of this chapter, we read about Natalie, whose story is typical of many individuals who have a severe physical disability. Natalie was diagnosed at a young age with one of the most common physical disabilities that occur in school-age children, cerebral palsy, and concomitant disabilities including a health impairment (seizure disorder) and complex communication needs. Like Natalie, many children with physical and health disabilities are faced with unique educational challenges because of professionals' limited knowledge of appropriate assessment techniques, correct educational placements, selection of appropriate curriculum, and use of specialized strategies to meet learning and communication needs. These students often require the use of mobility devices such as a wheelchair, in addition to **augmentative and alternative communication (AAC)** devices or other **assistive technology devices** (for example, an adapted keyboard). Although these students may encounter numerous barriers to learning, success is possible when educators and related service professionals work together to find solutions that address their unique educational requirements.

augmentative and alternative communication (AAC) Symbols, aids, strategies, and techniques used as a supplement or alternative to oral language.

assistive technology devices Any item, piece of equipment, or product system that increases, maintains, or improves functional capabilities of individuals with disabilities.

This chapter will examine what it means for a student to have a physical, health, or related low-incidence disability. Definitions will be provided, along with a history of the field, data on the prevalence of these disabilities, and some of their causes. A sampling of some of the most common types of physical, health, and related low-incidence disabilities will be explored. A model will be presented explaining how school performance is affected by a

physical, health, or related low-incidence disability, along with strategies to address these students' needs. Many other areas will be reviewed, including technology, services for young children, transition, adult issues, family issues, diversity, and current issues in the field of physical and health disabilities. We begin by defining physical, health, and related low-incidence disabilities as they are addressed in education.

Many individuals with physical or health disabilities are capable of living independent and productive lives.

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Defining Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities

While students may exhibit various physical or health conditions, only those with physical or health disabilities that have an adverse impact on educational performance meet eligibility for special education services. According to the Individuals with Disabilities Education Improvement Act of 2004 (PL 108–446), students with physical impairments may qualify for special education services under three possible IDEA eligibility categories: **orthopedic impairment**, **multiple disabilities**, and **traumatic brain injury**. Students with health disabilities may qualify under the IDEA category of **other health impairment**. Children with the loss of both vision and hearing receive services via the category of **deaf-blindness**.

orthopedic impairment A physical disability that occurs from congenital anomalies, diseases, or other causes that adversely affect a child's educational performance.

multiple disabilities Concomitant impairments that result in such severe educational needs that a student cannot be accommodated in a special education program solely on the basis of one of the impairments.

traumatic brain injury An acquired injury to the brain caused by an external force that results in a disability or psychosocial impairment that adversely affects educational performance.

other health impairment A chronic or acute health problem that results in limited strength, vitality, or alertness and adversely affects educational performance.

deaf-blindness Concomitant hearing and visual impairments.

The federal definition of orthopedic impairment provides examples of impairments resulting from congenital anomalies (irregularities present at birth), diseases, or other causes (see Table 14.1). In our chapter opener, Natalie received services under the eligibility category of orthopedic

impairment and received special education services because of the impact of her cerebral palsy on her school functioning. Although Natalie had other impairments (seizures and complex communication needs), her needs were able to be met under the category of orthopedic impairment.

When students have two or more primary disabilities that are significant enough to require services from more than one special education program, they may be classified as having multiple disabilities. For example, a child who has a severe physical disability and is deaf may be classified as having a multiple disability. This pupil may require services from a teacher certified to teach students with orthopedic impairments and another teacher certified to teach students who are deaf or hard of hearing. Many possible combinations of disabilities can fall under the category of multiple disabilities; since a physical or health disability is often involved, this category is addressed in this chapter.

Children who have acquired brain injuries as a result of external force, such as from a car accident, may be served under the category of traumatic brain injury. Traumatic brain injury may result in impairments in several different areas, including physical disabilities, sensory impairments, cognitive disabilities, speech or language impairments, and behavioral disorders. This category does not include individuals who have brain injuries that occurred before or during birth or that were acquired from a degenerative disease.

Table 14.1 Federal Definitions Pertaining to Physical or Health Disabilities and Deaf-Blindness

Table 14.1 Federal Definitions Pertaining to Physical or Health Disabilities and Deaf-Blindness

Terms	Definitions of Disabilities Based on IDEA Eligibility Categories
Deaf-blindness	Concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational needs that students cannot be

Terms	Definitions of Disabilities Based on IDEA Eligibility Categories
	accommodated in special education programs solely for children with deafness or children with blindness.
Multiple disabilities	Concomitant impairments (intellectual disability–blindness, intellectual disability–orthopedic impairment, etc.), the combination of which causes such severe educational needs that students cannot be accommodated in special education programs solely for one of the impairments. The term does not include deaf-blindness.
Orthopedic impairment	A severe orthopedic impairment that adversely affects a child's educational performance. The term includes impairments caused by congenital anomaly (e.g., clubfoot, absence of some member), impairments caused by disease (e.g., poliomyelitis, bone tuberculosis), and impairments from other causes (e.g., cerebral palsy, amputations, and fractures or burns that cause contractures).
Other health impairment	Having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli that results in limited alertness with respect to the education environment, that i. Is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, sickle cell anemia, and Tourette syndrome; and

Terms	Definitions of Disabilities Based on IDEA Eligibility Categories
	ii. Adversely affects a child's educational performance.
Traumatic brain injury	An acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem solving; sensory, perceptual, and motor abilities; psychosocial behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or to brain injuries induced by birth trauma.

Source: 34 C.F.R. § 300.8 (c).

Students who meet eligibility criteria under the category of other health impairments have limited alertness to the educational environment because of health problems that limit strength, vitality, or alertness. The health impairment may be chronic (persisting over a long period of time) or acute (having a short and usually severe course). The federal definition in Table 14.1 gives several examples of health impairments, including asthma, heart conditions, diabetes, and attention deficit hyperactivity disorder. This is only a partial listing of all of the possible conditions that may be included in this disability category.

Pupils who have combined visual or hearing impairments of such magnitude that they cannot be accommodated appropriately in a special education program for children with either deafness or blindness are identified as deaf-blind. Most of us could not imagine what it would be like to be without the use of both our hearing and our eyesight because we

gather so much information about our surroundings through these two senses. The loss of both hearing and vision represents one of the most challenging of all disability categories. It would be wrong to assume, however, that students identified as deaf-blind are completely unable to see or hear—the term is not absolute. In reality, many children in this category experience a broad range of perceptions. Fortunately, a majority of these individuals possess some degree of functional hearing and vision (Bruce & Ivy, 2017; Miles, 2018). Some pupils may be completely blind but only partially deaf, while in other instances a child might be partially sighted but have a severe hearing loss. Very few students classified as deaf-blind are profoundly deaf *and* have no usable vision (National Center on Deaf-Blindness, 2018a).

The challenges facing this group of children are sometimes formidable and often include severe communication deficits, impaired mobility, and diminished social skills. Intellectual disability and physical impairments often are present in individuals with deaf-blindness (National Center on Deaf-Blindness, 2018a). Children who are profoundly deaf and completely blind have very narrow experience with and knowledge of the world, often extending only as far as their fingertips can reach (Miles, 2018). Helen Keller said, “Blindness separates a person from things, but deafness separates him from people.” Helping a child who is deaf-blind relate to the world is a tremendous undertaking, a responsibility that frequently falls to teachers, family members, and other professionals.

A Brief History of the Field

Physical and health disabilities have existed throughout history; reactions to individuals who have these disabilities or diagnoses have varied across civilizations, cultures, and individual beliefs. Reactions have ranged from abandonment and extermination to providing educational, social, and medical treatment. A brief historical review of the treatment of individuals with physical or health disabilities will help to provide an understanding of present-day practices.

Early History

In ancient civilizations, individuals with physical or health impairments did not often live long. A lack of sophisticated medical treatment made it impossible to treat many of these impairments. Many cultures did not value individuals who were viewed as being incapable of contributing to group survival. Infants often were abandoned to die. Individuals who later developed injury or illness were ostracized and forced to leave the group. However, some artifacts do indicate that attempts were made to heal the effects of illness and disability in ancient times. For example, primitive skulls have been found with holes cut into them; evidence suggests that people were trying to cure epilepsy by cutting a hole through the skull to let "evil spirits out" (Temkin, 1971).

During the Middle Ages, religious influence typically resulted in more humanitarian care. Individuals with disabilities sometimes were viewed as "children of God" and received protection from the Church. However, in some instances, individuals with disabilities (such as seizure disorders) were perceived as witches or possessed by evil spirits and were burned at the stake (Gargiulo, 1985).

In the 1800s, physicians and researchers showed an increased interest in physical disabilities and studied individuals with disabilities to find effective treatments. For example, in the 1860s, Dr. William Little described several cases and treatments of what is now referred to as cerebral palsy (because of his pioneering efforts, the disorder was initially named Little disease). Around this time period, the first schools were opened for individuals with physical disabilities, in the form of residential institutions.

The first institution in the United States for children with physical disabilities was the Industrial School for Crippled and Deformed Children in Boston, established in 1890 (Eberle, 1922). This and other institutions were well intended, and provided a centralized place that could house needed equipment and provide specialized treatment and training. However, over the years, many institutions degenerated into providing only custodial

services. Residential institutions often became places to “protect” society from “undesirables” (Macmillan & Hendrick, 1993). This practice of separating individuals with disabilities from society has been questioned in modern society, with the recognition that persons with physical and health impairments can contribute positively to society and should be allowed to do so.

Emergence of Public Education

It was not until the 1900s that public schools for “crippled children” were established (La Vor, 1976), first in Chicago and then in New York, Cleveland, and Philadelphia. These schools permitted expensive equipment to be located centrally and enabled highly trained professionals to work with children who had physical disabilities. However, this segregated setting did not allow students with physical disabilities to interact with pupils without disabilities in the educational environment. Unfortunately, students with physical disabilities were not always welcome in public school. In *Beattie v. Board of Education* (1919), the courts ruled that students with physical disabilities could be excluded from school because they were said to have a “depressing and nauseating effect” on other students (Ysseldyke & Algozzine, 1982). Over time, the educational setting changed to allow for the integration of individuals with physical and health disabilities into neighborhood schools and general education classes. The move to more integrated school placements took a combination of legislation, shift in ideology, and advances in medical and technological practices.

Prevalence of Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities

Reported prevalence figures for physical and health disabilities vary widely, depending on the specific condition. For example, cerebral palsy, the most common motor disorder of childhood, affects about 1 in 323 children with approximately 500,000 children under the age of 18 having cerebral palsy. It is estimated that 8,000–10,000 infants and 1,200–1,500 preschool-age children are diagnosed with cerebral palsy each year (Centers for Disease Control and Prevention, 2018a; MyChild, 2018). According to the Spina Bifida Association of America (2018), spina bifida is the most common congenital anomaly that causes a permanent disability. Approximately 1,500 to 2,000 babies are born with spina bifida each year with an estimated 166,000 people living with spina bifida in the United States (National Institute of Neurological Disorders and Stroke, 2018c). The Epilepsy Foundation of America (2018a, 2018b) reports that approximately 300,000 children under the age of 14 have epilepsy with 150,000 new cases of epilepsy diagnosed each year. It is estimated that 1 in 26 Americans will develop epilepsy in their lifetime. Finally, over 6 million children, or about 8 percent of the population under the age of 18, have asthma, a chronic lung disease (Centers for Disease Control and Prevention, 2018e).

Not every school-age child with a physical or health impairment requires special education services because physical and health disabilities do not always have an adverse impact on academic performance. The U.S. Department of Education (2018) annually compiles information from each state on the number of school-age children receiving special education by disability category. During the 2016–2017 school year, in the area of physical and health disabilities, a total of 1,119,041 school-age children received services across the categories of orthopedic impairment (36,293 children), multiple disabilities (127,026 children), traumatic brain injury (24,195 children), and other health impairment (931,527 children). These

four areas comprised approximately 18 percent of the students receiving special education services, with a range of 0.4 percent (traumatic brain injury) to 15 percent (other health impairment). Students with deaf-blindness (3,024 children) were reported as making up less than 0.05 percent of all individuals receiving special education services. This figure, however, is thought to be underestimated because many children who are deaf-blind receive services through other categories (for example, multiple disabilities) when they have additional physical or intellectual impairments.

It is clear that students with physical, health, and other related disabilities represent a relatively small percentage of the population of individuals receiving a special education. Because many of these pupils have unique needs, teachers must be prepared to address those needs across a variety of educational environments.

Etiology of Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities

The etiology (or cause) of physical and health disabilities varies greatly according to the specific disease or disorder. Some of the most common etiologies resulting in physical and health disabilities are genetic and chromosomal defects, teratogenic causes, prematurity and complications of pregnancy, as well as acquired causes. In some cases, certain physical or health disabilities have multiple etiologies. For instance, infants are at risk for cerebral palsy due to preconception factors (for example, maternal diagnosis of seizures or thyroid disease prior to conceiving), prenatal factors (for example, small for gestational age), perinatal factors (for example, birth asphyxia where there is a lack of oxygen to the fetus), and postnatal factors (for example, respiratory distress syndrome or infections) (McIntyre et al., 2013).

Chromosomal and Genetic Causes

A variety of physical and health disabilities are due to inherited genetic conditions. Muscular dystrophy, sickle cell anemia, hemophilia, and cystic fibrosis are examples of conditions where the child inherits a genetic mutation present on one or both chromosomes (one chromosome inherited from each parent) (National Human Genome Research Institute, 2018; U.S. National Library of Medicine, 2018). In some cases, infants may be born with several disabilities resulting from an inherited genetic syndrome (for example, Cockayne syndrome, which can result in dwarfism, deaf-blindness, intellectual disability, unsteady gait, and tremors) (National Organization for Rare Disorders, 2018a).

Although there are about sixty genetic causes of deaf-blindness (National Center on Deaf-Blindness, 2018b), we have chosen only two illustrative syndromes. Our first example is **CHARGE association** (syndrome), a cluster of physical anomalies usually caused by a spontaneous genetic mutation rather than inherited from parental genes (Hartshorne & Hissong, 2014). This syndrome is an extremely complex disorder typically involving extensive medical as well as physical challenges. CHARGE association is a relatively rare disorder occurring in 1 out of every 15,000 to 17,000 births (Wong et al., 2015). In the vast majority of cases, there is no history of CHARGE syndrome or any other similar condition in the family (CHARGE Syndrome Foundation, 2018). CHARGE is an acronym that stands for

CHARGE association A rare genetic disorder resulting in deaf-blindness, a syndrome representing a cluster of physical anomalies present at birth.

C = coloboma, a congenital condition resulting from an unusually shaped (teardrop) pupil and/or other abnormalities of the eye contributing to difficulties with depth perception, visual acuity, and sensitivity to light
H = heart defects, which may range from minor to life-threatening conditions

A = atresia, complications of the respiratory system
R = retarded physical growth; in some instances intellectual disability is also present
G = genital abnormalities—incomplete or underdeveloped genitals, more common in males
E = ear defects, structural deformities in the outer, middle, or inner ear; hearing loss may range from mild to profound. (CHARGE Syndrome Foundation, 2018)

In order to make a diagnosis of CHARGE, four of the preceding six characteristics must be present. In addition, children who exhibit this syndrome frequently experience high levels of anxiety while displaying compulsive behaviors (Hartshorne & Hissong, 2014).

Our second illustration is **Usher syndrome**. This inherited disorder is one of the leading causes of deaf-blindness after childhood. Between 1 and 4 out of 25,000 individuals are born with this condition (Mathur & Yang, 2015). Usher syndrome results in congenital deafness, progressive vision loss (retinitis pigmentosa), and, in some children, intellectual disability. Vision difficulties are typically noted in adolescence or early adulthood, eventually leading to night blindness and tunnel vision. Hearing loss is evidenced in both ears and is usually in the moderate (45- to 55-dB) to severe (71- to 90-dB) range. Significant balance difficulties are also associated with this syndrome (Mathur & Yang, 2015). (See the accompanying First Person feature.)

Usher syndrome An inherited disorder resulting in deaf-blindness, deafness present at birth accompanied by progressive vision loss, sometimes associated with intellectual disabilities.

Finally, approximately 17 percent of children who are deaf-blind evidence this disability at birth or within the first five years of life. The overwhelming majority of students with deaf-blindness, however, are adventitiously deaf-blind; that is, they are born with both vision and hearing but lose some or all of these senses as a result of illness or injury (Miles, 2018; National Center on Deaf-Blindness, 2018b). How deaf-blindness

impacts a child’s development depends on several key variables, including age of onset, the degree and type of hearing and vision loss, the stability of each sensory loss, and, perhaps most important, the educational interventions provided (National Center on Deaf-Blindness, 2018a).

Teratogenic Causes

Some physical and health disabilities are caused by teratogenic agents that affect the developing fetus. **Teratogens** are outside causes, such as infections, drugs, chemicals, or environmental agents, that can produce fetal abnormalities.

teratogens Infections, drugs, chemicals, or environmental agents that can produce fetal abnormalities.

First Person: Virginia One Day at a Time

As early as the fourth grade, I became aware that I probably didn't see as well as others in the dark. But not being able to see at night just seemed like it should be normal.

However, in seventh grade, in anticipation of our Washington, DC, school trip, I was a little worried about the whole "not being able to see at night" thing, so my mom and I went to talk to the school nurse who was also going on the trip. She checked my eyes and said that I just needed glasses (not that that had anything to do with not being able to see in the dark). My mom made an appointment with the eye doctor, and he also said that I needed glasses. My dad told the doctor that the main reason for the appointment was to find out why I couldn't see in the dark. He examined my eyes again and said that I would have to take some additional tests at Emory University.

The summer before eighth grade, I discovered the real reason I couldn't see in the dark: I had Usher syndrome. I couldn't believe it, and I didn't want to believe it. I didn't want to lose a sense that was so very precious to me. I used my sight not only to get around but also, because of my hearing loss, for lipreading. At such a young age, I was worried about being "normal." For the next two years, I was in a state of denial. I refused to talk about my condition, and if I was forced to talk about it, it only brought pain. How could I, a person who relied so heavily on sight to communicate, lose my vision? It just didn't seem fair, and I felt so alone. No one knew or understood what I was going through. Of course, I had my family and friends supporting me, but I still felt alone.

It wasn't until I was 15 that I began to accept my deaf-blindness. Now I'm OK with my disability. While I have learned to accept my vision as something that has shaped who I am today, I am in no way completely cured of all my emotional pain. No way! I still struggle with adjusting to the changes in my vision. I worry about completing college and what the future holds. There are some days when I get so frustrated that all I want to do is

run away and scream. It's hard, but all I can do is take one day at a time and trust that God has an awesome plan for my life.

—Anonymous

Certain congenital infections can result in severe multiple disabilities in the unborn child. Infections are acquired by the mother and then passed on to the developing fetus. Several prenatal infections that may result in severe congenital anomalies (formerly referred to as "birth defects") are referred to by the acronym TORCH—toxoplasmosis, other, rubella, cytomegalovirus, and herpes. The effects of these infections on the fetus can vary from no adverse effect to severe disabilities or death. A baby who contracts one of these infections during gestation may be born with blindness, deafness, intellectual disability, and several other abnormalities, including heart defects, kidney defects, brain abnormalities, and deaf-blindness (National Organization for Rare Disorders, 2018c).

The fetus is also at risk of developing physical and health disabilities when exposed to certain drugs, chemicals, or environmental agents. For example, maternal abuse of alcohol, leading to fetal alcohol spectrum disorders, has been linked to a range of physical, cognitive, sensory, and behavioral impairments that can result in lifelong damage (Centers for Disease Control and Prevention, 2018b; Tewar, 2019). Serious fetal abnormalities also can occur as a result of prescription medications taken for maternal illness or disease (for example, certain antibiotics and seizure medications). Environmental toxins such as radiation have been linked to congenital anomalies, cancer, and mutations (Gomes, Matias, & Macedo, 2015). Certain maternal diseases, such as diabetes, have been associated with a higher risk of congenital malformations (Hammouda & Hakeem, 2015).

Prematurity and Complications of Pregnancy

Infants are usually born at about 40 weeks of gestation, weighing approximately 7.5 pounds. An infant born before or at 36 weeks is considered premature (Rais-Bahrami & Short, 2019).

Infants who are premature and born with very low birth weight (less than 1,500 grams or approximately 3.3 pounds) are at risk of having disabilities. These infants can develop neurological problems resulting in cerebral palsy, epilepsy, vision loss, hearing loss, and deaf-blindness, as well as other impairments (Kobayashi et al., 2015). Additionally, infants with very low birth weight may have lasting cognitive and adaptive behavior deficits that can contribute to future educational difficulties and lower health-related quality of life (Howe, Sheu, Hsu, Wang, & Wang, 2016; Poole et al., 2017).

In some instances, babies who are born on time having average weight encounter complications during the birth process, or perinatal period. The most common cause of brain injury during the perinatal period is asphyxia —a decrease of oxygen in the blood. Among infants who survive an episode of asphyxia, several disabilities may occur such as cerebral palsy, epilepsy, and cognitive deficits (Nasiell, Papadogiannakis, Löf, Elofsson, & Hallberg, 2016).

Acquired Causes

Many physical and health disabilities in addition to related low-incidence disabilities are acquired after birth by infants, children, and adults. These acquired causes include trauma, child abuse, infections, environmental toxins, and disease. For example, deaf-blindness may be caused by meningitis. Traumatic brain injury results from some type of trauma (for example, falls, accidents, child abuse). The extent of a disability's impact depends on the cause and its severity.

Characteristics of Individuals With Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities

The specific characteristics of an individual who has a physical or health disability will depend on the specific condition, the condition's severity, and individual factors. Two individuals with identical diagnoses may be quite different in terms of their capabilities. In addition, it is important to remember that students who have severe physical disabilities (even individuals who are unable to talk, walk, or feed themselves) may have intelligence in the normal or gifted range. Intellectual ability cannot be judged solely on the basis of physical appearance.

Table 14.2 Examples of Physical and Health Disabilities

Table 14.2 Examples of Physical and Health Disabilities

Physical Disabilities	Health Disabilities
Orthopedic Impairments	Other Health Impairments
Neuromotor impairments •Cerebral palsy •Spina bifida	Major health impairments •Seizure disorders •Asthma
Degenerative diseases •Muscular dystrophy	Infectious diseases •AIDS
Musculoskeletal disorders •Juvenile idiopathic arthritis •Limb deficiency	
Multiple Disabilities*	

Physical Disabilities	Health Disabilities
Physical disability plus another disability	
Traumatic Brain Injury*	
Physical disability resulting from traumatic brain injury	

Note: *Multiple disabilities and traumatic brain injury can occur without a physical disability being present. For the purpose of discussion in this chapter, they are included in the category of physical disabilities only when a physical disability is present.

Teachers may work with students who have a multitude of physical and health disabilities. Each type of disability has differing characteristics, treatments, and prognoses. To illustrate the range of conditions included under physical and health disabilities, this section describes a number of examples across the four IDEA categories of orthopedic impairment, multiple disabilities, traumatic brain injury, and other health impairment. Table 14.2 gives an outline of the categories, subcategories, and conditions that will be discussed. Characteristics of individuals with deaf-blindness also will be reviewed.

Individuals with severe forms of cerebral palsy are unable to make the motor movements necessary to walk or sit without support.

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Characteristics of Students With Orthopedic Impairments

Students may receive special education services under the IDEA category of orthopedic impairment due to a wide variety of disorders. These disorders can be divided into three main areas: neuromotor impairments, degenerative diseases, and musculoskeletal disorders. Each of these areas has unique characteristics and contains many different disabilities. It would be an impossible task to discuss all of the rare conditions that may result in physical disabilities. Teachers are encouraged to learn about specific diagnoses by searching reliable online databases such as those sponsored by the National Organization for Rare Disorders (2018b) or the National Institute of Neurological Disorders and Stroke (2018b). Following is a sample of some of the most common orthopedic impairments in the school-age population.

Neuromotor Impairments

A **neuromotor impairment** is an abnormality of, or damage to, the brain, spinal cord, or nerves that send impulses to the muscles of the body. Neuromotor impairments often result in complex motor problems that can affect several body systems (for example, limited limb movement, loss of urinary control, loss of proper alignment of the spine). Individuals with neuromotor impairments have a higher incidence of additional impairments, especially when there has been brain involvement (for example, intellectual disability, seizures, and visual impairments). Two types of neuromotor impairments that fall under the IDEA category of orthopedic impairment are cerebral palsy and spina bifida.

neuromotor impairment Several types of impairments involving abnormality of, or damage to, the brain, spinal cord, or nerves that send impulses to the muscles of the body.

1. **Cerebral Palsy.** **Cerebral palsy** refers to a group of nonprogressive disorders of voluntary movement or posture that are caused by damage to a part of the brain that controls muscle movement, occurring before or during birth or within the first few years of life (National Institute of Neurological Disorders and Stroke, 2018a). Cerebral palsy is associated with many different etiologies, including prematurity, complications of pregnancy (such as lack of oxygen), teratogens (such as the TORCH infections), certain genetic syndromes, and acquired causes.

> **cerebral palsy** Several nonprogressive disorders of voluntary movement or posture that are caused by damage to the developing brain.

Individuals with cerebral palsy have increased or decreased muscle tone, a lack of muscle coordination when performing voluntary movements, and/or exaggerated physical reflexes (National Institute of Neurological Disorders and Stroke, 2018a). The severity can range from mild to severe. Some mild forms of cerebral palsy may be noticeable only when the person runs and appears to move in an uncoordinated fashion. At the other extreme, individuals with severe forms of cerebral palsy are unable to make the motor movements necessary to walk, sit without support, feed themselves, chew food, pick up objects, or speak.

The four most common types of cerebral palsy are spastic, athetoid, ataxic, and mixed. **Spastic cerebral palsy** is characterized by very tight muscles occurring in one or more muscle groups. This tightness results in stiff, uncoordinated movements. In **athetoid cerebral palsy**, the individual will exhibit slow, writhing movements. Persons with **ataxic cerebral palsy**, or **ataxia**, have poor balance and equilibrium in addition to uncoordinated voluntary movement. **Mixed cerebral palsy** refers to a combination of types, such as spastic and athetoid, as in the case of Natalie described at the beginning of this chapter.

> **spastic cerebral palsy** A type of cerebral palsy in which the person has very tight muscles occurring in one or more muscle groups, resulting in stiff, uncoordinated movements.

athetoid cerebral palsy A type of cerebral palsy in which the person exhibits writhing, contorted, and purposeless movements.

ataxic cerebral palsy (ataxia) A type of cerebral palsy that is characterized by poor balance and equilibrium in addition to uncoordinated voluntary movement.

mixed cerebral palsy Cerebral palsy that consists of combinations of different types. A person who has both spastic and athetoid cerebral palsy would be considered to have mixed cerebral palsy.

Cerebral palsy is classified further by which limbs (arms and legs) are affected. This classification system also is used for other types of motor disorders and paralysis. Some of the major classifications are **hemiplegia**, in which the left or right side of the body is affected; **diplegia**, in which the legs are more affected than the arms; **paraplegia**, in which only the legs are affected; and **quadriplegia**, in which all four limbs are affected (see Figure 14.1). Natalie's spastic cerebral palsy is the type in which all four limbs are severely involved. Hence, she is described as having severe spastic quadriplegic cerebral palsy, in addition to the athetoid movement patterns.

hemiplegia Paralysis (or spasticity) on the left or right side of the body.

diplegia Paralysis (or spasticity) of the legs and partly the arms.

paraplegia Paralysis (or spasticity) of the legs.

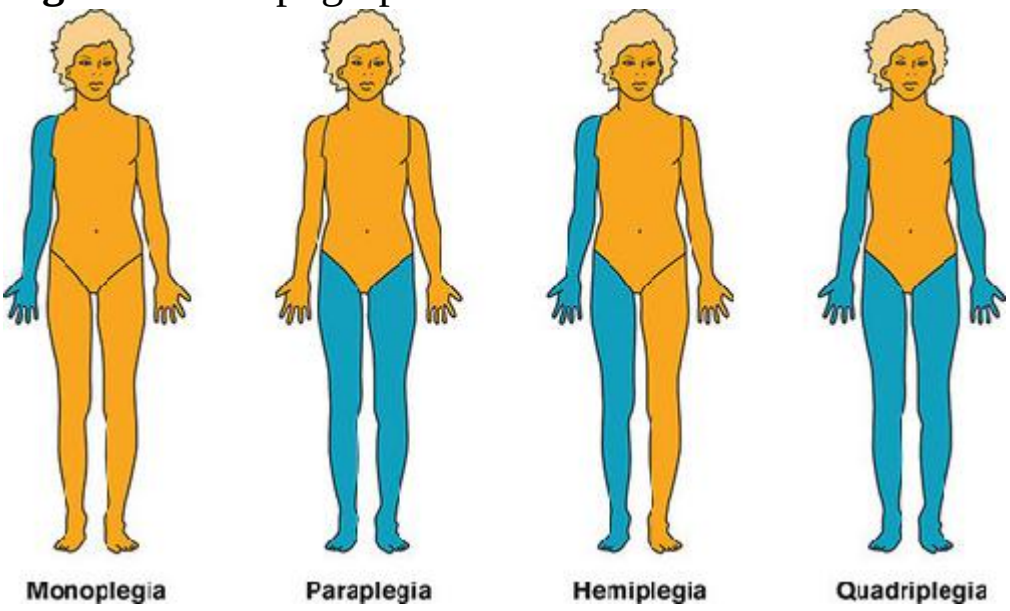
quadriplegia Paralysis (or spasticity) of both legs and both arms.

Although cerebral palsy is considered nonprogressive because the brain damage does not worsen over time, further complications and additional disabilities may result because of increased or decreased muscle tone. Many individuals develop **contractures** (the permanent shortening of muscles that results in the inability to fully extend a joint, such as being unable to fully extend the arm at the elbow or completely straighten at the knees) that

further decrease motor movement and function. Atypical muscle tone can result in conditions such as curvature of the spine (scoliosis) and hip displacement because of the constant pull of muscles due to high tone or the lack of support on the joint from muscles with low tone. Abnormal oral reflexes may decrease the ability to chew and swallow proficiently, which might result in a need for a feeding tube (a tube going into the stomach through which nutritional liquids are given) if the person is unable to eat sufficient amounts of food. Individuals with cerebral palsy have an increased incidence of other disorders, including epilepsy, visual impairments, speech–language impairments, as well as intellectual disability (Johnson, Chin, & Hoon, 2019). However, cognitive ability can range from giftedness to intellectual disability, and accurate scores can be difficult to obtain, particularly when the person's speech is affected.

contractures Shortened muscles that result in the inability to fully extend a joint.

Figure 14.1 Topographical Classification of Cerebral Palsy



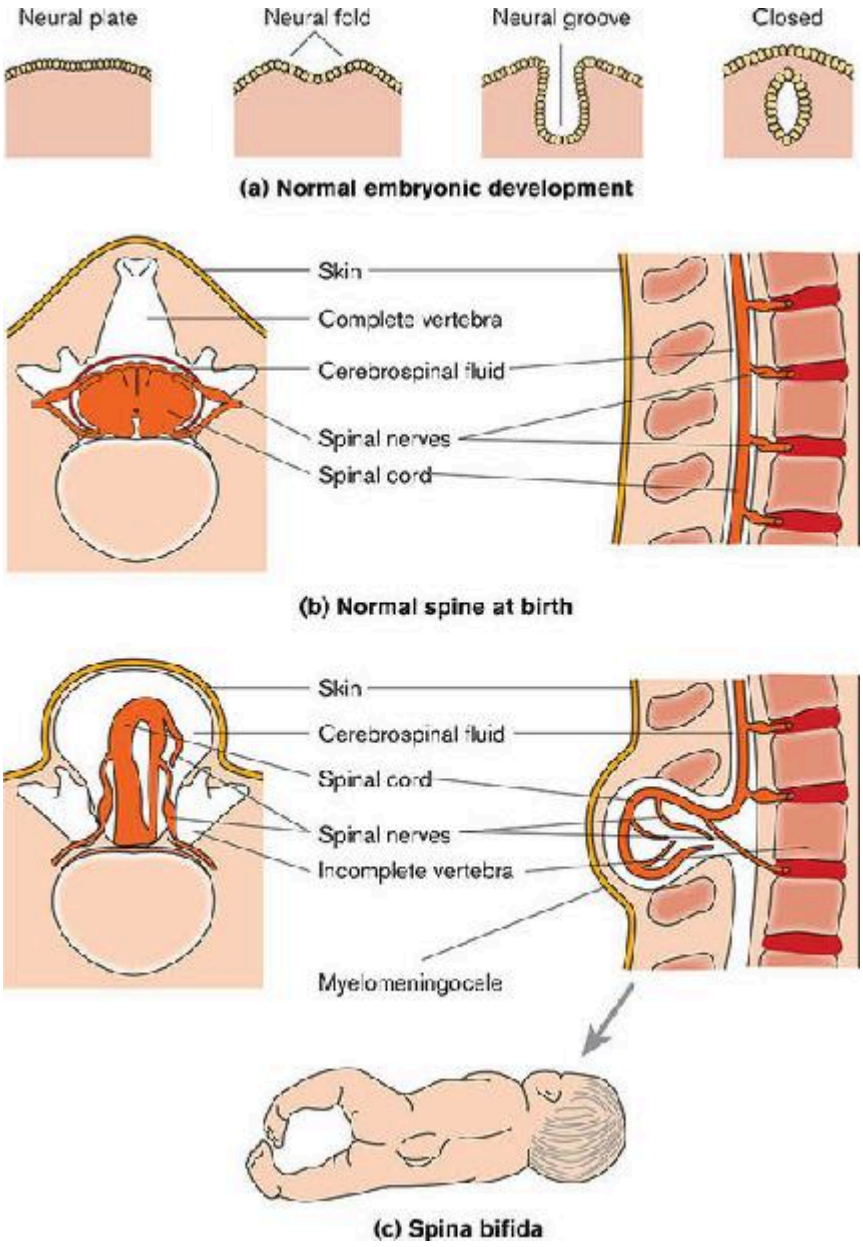
At present, there is no cure for cerebral palsy. Cerebral palsy often is managed through medication (such as the muscle relaxant baclofen) and/or surgery to reduce or prevent physical deformities related to atypical muscle tone. These treatments may reduce some of the effects of cerebral palsy, but movement abnormalities will remain. Part of a student's treatment regimen

may include the use of various braces or splints, known as **orthotics**, to help maintain alignment and decrease the development of contractures. New, experimental treatments are under investigation in the hope of improving motor function.

orthotics Various braces or splints used to help maintain alignment and decrease the development of contractures.

2. **Spina Bifida.** During the first twenty-eight days of pregnancy, special embryo cells form a closed tube that will become the brain and spinal cord. When this process is interrupted and the tube does not completely close, a congenital abnormality known as a neural tube defect occurs. When it occurs in the area of the spinal cord, a condition known as **spina bifida** (or "split spine") results. In the most severe form, myelomeningocele spina bifida, the baby is born with a sac protruding from an opening in the spine that contains part of the spinal cord (see Figure 14.2). Because the spinal cord becomes injured while growing outside of the spinal column, it does not function properly at the point of the sac and below (Spina Bifida Association of America, 2018). Surgery will be performed to remove the sac within the first few days of life, but the damage to the spinal cord cannot be reversed (Herring, 2013). Since 1996, some babies born with myelomeningocele spina bifida have had surgery while still in their mothers' wombs. The results of a seven-year, multicenter study demonstrated that fetal surgery has some early advantages over surgery after birth in terms of reduced rates of hydrocephalus (buildup of cerebrospinal fluid in the brain) and higher rates of independent walking by 30 months of age. Additional research is under way to determine if the long-term effects of fetal surgery are worth the risks posed to the mother during surgery and the risk of preterm delivery or infant mortality (Cincinnati Fetal Center, 2018; Cohen et al., 2014; Moldenhauer et al., 2015; Scully, Mallon, Kerr, & Ludzia-Deangelis, 2012).

Figure 14.2 Normal Development of the Neural Tube, Normal Spine at Birth, and Spina Bifida



spina bifida Failure of the neural tube to completely close during fetal development. In its most severe form, the baby is born with a sac protruding through the spine containing part of the spinal cord.

The characteristics of myelomeningocele spina bifida depend on the location of the defect. As with a spinal cord injury, there will be a lack of movement and sensation below the area of injury. Although the defect can occur anywhere along the spinal column, it typically occurs in the lower part of the spinal cord. Usually, the individual will have difficulty walking,

but may be able to do so with braces, crutches, or a walker. Some children will need a wheelchair for long distances, and others may only have independent mobility with use of a wheelchair. In addition, many students will need to perform a clean intermittent catheterization procedure in order to empty their bladders. Children with spina bifida have an increased frequency of latex allergies, thus requiring the use of latex-free gloves and avoidance of latex products such as latex bandages and latex balloons (Blumchen et al., 2010).

Students with spina bifida are at risk for increased buildup of fluid in the brain, or hydrocephalus. To treat hydrocephalus, a shunt (small tube) is placed under the skin from the brain and usually into the abdominal area to drain the excess fluid. It is important for teachers to know the signs and symptoms to look for should the shunt become blocked. Representative symptoms include headache, irritability, vomiting, crossed eyes, inability to look up, difficulty swallowing, lethargy, worsening arm or leg function, seizure, and worsening brain function (for example, deterioration in school performance, emotional or personality changes) (Dias, 2018). Sometimes the symptoms are subtle and not easily detected. However, if a shunt blockage is suspected, the teacher will need to notify the appropriate personnel and student's parents immediately. If the shunt is failing to drain properly, the child will need shunt repair surgery to avoid lasting effects due to increased pressure within the brain.

Many individuals with spina bifida and hydrocephalus are at risk for executive functioning deficits that can affect their learning. This may include deficits in such areas as shifting and sustaining attention, memory, recall, organization, visual-perceptual skills, inhibiting behaviors, and navigating complex social situations (Holbein, Peugh, & Holmbeck, 2017; Stubberud, Langenbahn, Levine, Stanghelle, & Schanke, 2013). Some children with spina bifida have difficulty with language skills such as comprehension, initiating and maintaining conversations, interpreting meaning in complex conversations, mentally organizing verbal responses, and exhibiting verbosity (Holbein et al., 2015; Holbein et al., 2017). Adaptations and skillfully designed instructional strategies are needed in order to provide an appropriate education for these pupils.

Degenerative Diseases

Degenerative diseases that affect motor movements make up the second group of disabilities within the category of orthopedic impairment. Degenerative diseases typically are grouped separately because of their unique and poignant impact on individuals. The student with a degenerative disease will need increasingly more complex adaptations and assistive technology to permit continued participation in school activities. Additionally, teachers who work with students who have degenerative conditions are confronted with emotional issues regarding the loss of capabilities and dying. One of the most common degenerative diseases in school-age children is **Duchenne muscular dystrophy**.

> **Duchenne muscular dystrophy** An inherited condition characterized by progressive muscle weakness from the degeneration of muscle fibers.

Muscular dystrophy includes a group of inherited diseases characterized by progressive weakness of skeletal muscles from degeneration of muscle fibers (Muscular Dystrophy Association, 2018b). When an infant is born with Duchenne muscular dystrophy, no disability is initially apparent. Usually by age 3, leg weakness begins to manifest in difficulties with walking and running, often resulting in frequent falls. During the early school years, these children may walk on their toes or the balls of their feet with a waddling gait and pulled-back shoulders. They may have trouble raising their arms and may fall frequently, in addition to experiencing difficulty walking long distances and getting up from the floor. Usually between 7 and 12 years of age, the individual cannot walk and requires a wheelchair. Through the teenage years, muscle weakness continues, and the adolescent is no longer able to push a wheelchair; consequently, a power wheelchair is often needed. Over time, it becomes increasingly difficult to move the arms or keep the head upright. As the muscles used for breathing weaken, most individuals will develop heart and/or respiratory complications and die in their 20s. Life expectancy into the 30s, 40s, and even 50s, however, is becoming increasingly common (Muscular Dystrophy Association, 2018a).

There currently is no effective treatment for Duchenne muscular dystrophy. The aim of treatment is to try to maintain functioning and help the person maintain some degree of independence as long as possible. Physical and occupational therapies as well as braces and splints are used in an effort to prevent deformity of the legs and arms. Proper positioning is important to reduce development of scoliosis. Medications are frequently prescribed for a variety of problems, such as respiratory infections and heart conditions. Surgeries may be performed to release contractures or stabilize the spine.

About one third of students with Duchenne muscular dystrophy have mild learning difficulties because of changes in a brain chemical (dystrophin) associated with this disease (Muscular Dystrophy Association, 2018a). Cognition, however, remains stable as the muscles degenerate. These students will need strategies and adaptations to make learning accessible. Teachers need to be observant of the disease's progression and inform the special educator if problems develop. Sometimes, worsening problems indicate that the pupil's assistive technology needs modification. For example, a student who was using a pencil to write may need to change to a keyboard and then to a smaller adapted keyboard as motor movements are lost and fatigue increases.

Musculoskeletal Disorders

The severity of physical disability varies greatly for students with musculoskeletal disorders. Although some musculoskeletal conditions can result in severe physical limitations, most musculoskeletal disorders are not accompanied by cognitive, learning, perceptual, language, or sensory issues to the extent that is found in many neuromotor impairments. Two examples in this category are juvenile idiopathic arthritis and limb deficiencies.

1. **Juvenile Idiopathic Arthritis.** Juvenile idiopathic arthritis (JIA) is a chronic arthritic condition affecting the joints that occurs before 16 years of age and lasts more than six weeks. Although there are different types of JIA, the main features are joint effusion (swelling of the joint) that may be accompanied by reduced range of motion, pain

on movement, and warmth over the affected joints. Morning stiffness and more prominent pain in the morning or after inactivity are typical. Over time, this disease may go into remission, stabilize, or progress and cause permanent deformity of the joints. The disease may result in additional disabilities such as contractures and visual impairments. Treatment of JIA consists of aggressive interventions using a range of medications with an aim of early disease remission (Arthritis Foundation, 2018; Ostring & Singh-Grewal, 2013).

juvenile idiopathic arthritis (JIA) A chronic arthritic condition affecting the joints that occurs before 16 years of age.

As with any condition that involves pain, students' learning will be affected when pain is present. Fatigue and lack of stamina also may interfere with learning. Students with juvenile idiopathic arthritis often need adaptations to address these issues. For example, sitting too long may result in stiffness and pain when getting up. The student may need to stand or move around the classroom periodically during instruction. Pupils with JIA may need to leave class early in order to get to their next one to avoid being bumped in the hallways. In some instances, adaptations of writing assignments may be necessary such as decreasing assignment length, increasing time for completion, or allowing a classmate or adult to serve as a scribe as the student dictates. If significant joint deformity has occurred, assistive technology (such as an adapted keyboard or a speech-recognition app) may be required.

2. **Limb Deficiency.** A **limb deficiency** refers to any number of skeletal abnormalities in which a limb, or more than one limb, is partially or totally missing. A student may be born missing an arm or a leg or may lose a limb in an accident. Typically, individuals with limb deficiencies will be fitted with prosthetic devices (artificial limbs). There are many different types of prosthetic devices with different levels of complexity. A student may have a leg prosthetic that allows for walking and running or an artificial hand that permits grasping and writing. If the limb has been missing from birth, the child may have learned to do things using other limbs. For example, some individuals

who are missing both arms can write or type and feed themselves with their feet. Whether a prosthetic device is used or not, many students with limb deficiency require adaptations and may need specialized instruction in such areas as one-handed keyboarding.

limb deficiency Any number of skeletal abnormalities in which one limb, or more than one limb, is partially or totally missing.

Some students may use their feet for such tasks as accessing a communication device.

Mehdi Fedouach/AFP/Getty Images

Characteristics of Students With Multiple Disabilities

Multiple disabilities is an umbrella term under which various educational, rehabilitation, government, and advocacy groups include different combinations of disabilities. In IDEA, this category refers to persons with concomitant impairments whose needs cannot be met in a special education program designed solely for one of the impairments. Although there is no single definition, the term does imply a combination of two or more disabilities that creates an interactional, multiplicative effect rather than just an additive one. Some examples include learners with the following conditions:

- Behavior disorder and muscular dystrophy
- Cerebral palsy and deafness
- Intellectual disability and spina bifida
- Learning disabilities and asthma

Depending on the type of multiple disabilities, cognitive functioning may vary from giftedness to profound intellectual disability. Usually there will be a need for adaptations, assistive technology, and specialized teaching strategies.

Characteristics of Students With Traumatic Brain Injury

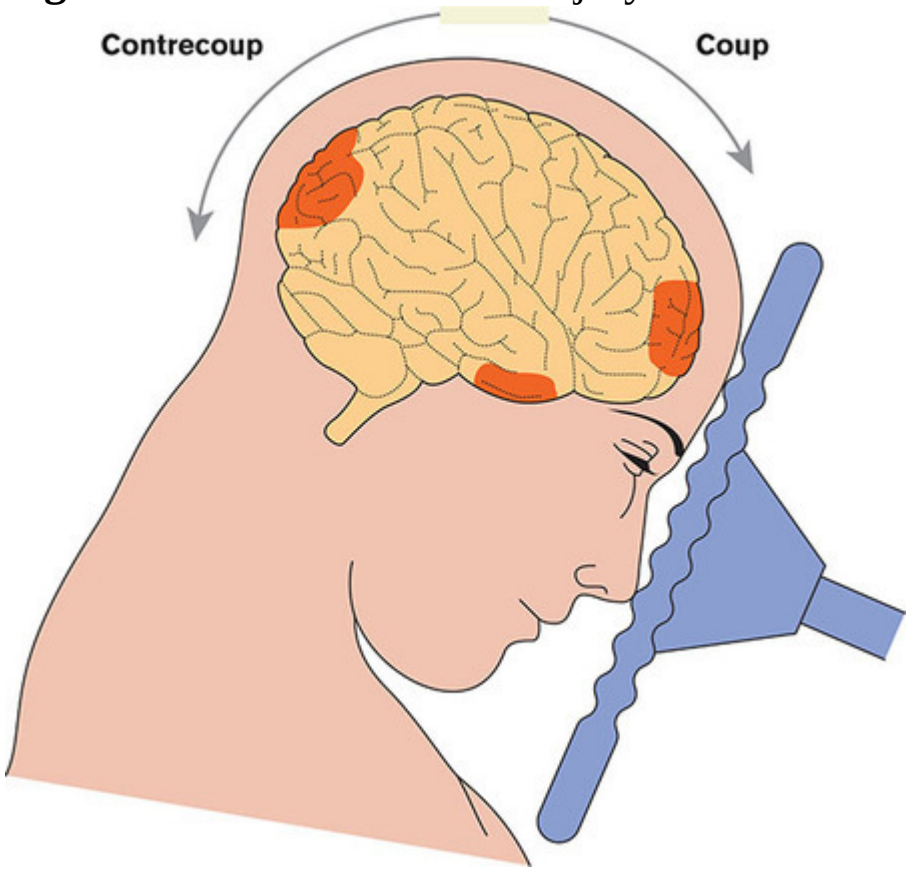
Traumatic brain injury refers to temporary or permanent injury to the brain from acquired causes such as automobile accidents, accidental falls, sports injuries, recreational activities, and even gunshot wounds to the head. The term does not include congenital or degenerative conditions or birth trauma. It is estimated that approximately 2.8 million people in the United States have experienced a traumatic brain injury resulting in a visit to an emergency department, hospitalization, or death (Centers for Disease Control and Prevention, 2018f). Traumatic brain injuries can occur at any age, including in very young children; however, one of the highest rates of injury occurs among teenagers and young adults (Dewan, Mummareddy, Wellons, & Bonfield, 2016; Risen, Schultz, & Trovato, 2019).

The effects of an injury will differ depending on the cause. A penetration injury, such as a bullet going through the brain, will result in certain specific effects. The effects of the injury are usually localized to the site of injury, with secondary effects occurring in other areas as a result of complications.

An acceleration injury arising from a car accident results in diffuse damage throughout the brain. When the head hits the steering wheel of a car, for example, the brain (which is floating in cerebrospinal fluid) is thrown violently forward against the skull. The injury to this initial site of impact is referred to as *coup* (see Figure 14.3). The brain is then thrown backward and hits the back of the skull. The injury to this second site of impact is known as *contrecoup*. The brain continues to move back and forth, hitting against the skull, and suffering further damage against any sharp bony protrusions. Often the brain will be twisting as well, breaking and damaging nerve cells throughout. The result is diffuse damage across the brain. Complications such as hemorrhage (bleeding) and edema (swelling) often cause further damage to the brain.

The effects of traumatic brain injury range from no lasting effects to ongoing, severe disabilities. Most head injuries are mild, with no abnormalities found on neurological exams, and the person often does not require medical treatment. Even following a mild injury, however, problems such as headache, fatigue, distractibility, memory problems, and perceptual motor slowing can occur and persist for months, for years, or permanently. These problems often go undetected until difficulties arise during classroom activities. In one case, a girl fell out of a window and was taken to the emergency room. Although she had no apparent damage, she failed the school year. In retrospect, the teacher and parent were able to trace the student's academic difficulties as beginning after the accident and realized that some cognitive deficits must have occurred.

Figure 14.3 Traumatic Brain Injury



Source: Adapted from S. Grandinette and S. Best, "Traumatic Brain Injury," in K. Heller, P. Forney, P. Alberto, S. Best, and M.

Schwartzman (Eds.), *Understanding Physical, Health, and Multiple Disabilities*, 2nd ed. (Upper Saddle River, NJ: Pearson Education, 2009), p. 122.

Students with moderate and severe cases of traumatic brain injury typically require hospital stays and rehabilitation services before reentering school. The person with a severe traumatic brain injury often enters the hospital in a coma and slowly regains some or most abilities. Typically, motor skills return first, and higher-level cognitive skills return last. Improvement can be a long process, with the most dramatic gains occurring over the first year but skills continuing to improve over about a five-year period.

Some individuals may recover completely from a traumatic brain injury, while others may have permanent disabilities. A traumatic brain injury has the potential for causing lifelong disabilities across physical, cognitive, social, behavioral, health, and sensory domains. In the area of physical disabilities, some individuals lose the ability to walk or use their hands. However, the permanent physical disability may be more subtle, with decreased motor speed, balance, strength, and coordination (Davis & Dean, 2010; Davis, Moore, Rice, & Decker, 2015; Katz-Leurer, Rotem, Keren, & Meyer, 2009). Although these may seem mild, they can interfere with participation in physical education and activities requiring fine motor control.

Cognitive deficits can remain after a traumatic brain injury. These can range from severe intellectual disability to mild cognitive impairments. Individuals often have executive functioning deficits such as sustaining attention, shifting attention, organization, planning, comprehension, and memory (Braine & Smith, 2013; Crowe, Catroppa, Babi, & Anderson, 2013). Impairments in these areas result in learning problems and difficulty with setting goals, monitoring and evaluating performance, shifting strategies to address a problem, remaining focused over time, and remembering information. Teachers will need to use systematic instruction and specialized strategies to address these problems.

Impairments in social and behavioral functioning are common in individuals with traumatic brain injury. Poor social interactions can occur following a traumatic brain injury with low peer acceptance. Some individuals will have impulsive behavior and episodic aggression (Wood & Thomas, 2013). These types of behaviors often are considered the most challenging to address in the classroom setting. A behavior management plan may be needed including specific strategies and guidelines for how to address behavior problems.

During the reauthorization of IDEA in 1990, traumatic brain injury was added as a separate disability category, in part because of its unique and multiple characteristics that can interfere with learning and functioning. Students with traumatic brain injuries need to be assessed continuously because skill levels may improve over time and skills lost from the injury may return. For example, one student with a three-year-old severe traumatic brain injury was being taught to use pictures to communicate when suddenly she began to laugh at a misspelled word on a bulletin board. She had regained the ability to read most words without anyone realizing it. Individuals with a traumatic brain injury may exhibit “splinter skills” meaning that they have partial advanced skills but lack other simple ones. In one case, a pupil with severe traumatic brain injury could identify any number, no matter how large, but had difficulty with the concept that 1 + 1 = 2. Teachers need to use a variety of adaptations and strategies to address the complex array of problems that a student with a traumatic brain injury may have. Some examples are provided in the accompanying Strategies for Effective Teaching and Learning feature. It is vital that the special education teacher work closely with the general education teacher in helping to identify and implement the most appropriate instructional interventions.

Strategies for Effective Teaching and Learning
Strategies That May Be Used for Students With Traumatic Brain Injury

Impairments	Strategies	Examples
Poor attention	Decrease distractions.	Move away extra pencils.
	Provide cues to attend.	Touch card that says “Listen.”
	Limit amount of information.	Divide up information.
	Provide advance organizers.	Give list of important events.
Memory problems	Teach verbal rehearsal strategies.	Student repeats list of people.
	Teach use of visual imagery.	Student visualizes battle for history.
	Provide information in writing.	Give teacher’s notes.
	Give a school schedule.	Put pictures by each subject.
	Repeat directions.	Repeat one direction at a time.
Decreased writing speed and accuracy	Give more time on tests.	Student takes test over two periods.
	Decrease assignment load.	Student writes two fewer papers.
	Have student type instead of writing by hand.	Student writes faster using keyboard.
Decreased stamina and endurance	Allow rest breaks.	Student rests for five minutes.
	Adjust school day.	Student comes for half day.

Characteristics of Students With Other Health Impairments

Disabilities that fall under the IDEA category of other health impairment can be divided into two areas: major health impairments and infectious diseases. Students typically do not require special education services unless these conditions are so severe that they have an adverse impact on educational performance due to factors such as treatment effects, numerous absences, fatigue, and decreased stamina.

Major Health Impairments

Many major health impairments fall under the category of other health impairment. Some of these can be treated effectively; others have no cure. Many of them can give rise to emergency situations that need to be handled immediately, and some even result in death. Teachers need to ensure that students with major health impairments have individualized health care plans that detail their medical information, treatments and treatment effects, and emergency care plans. Two of the most commonly occurring major health impairments are seizure disorders and asthma.

1. **Seizure Disorders.** A **seizure** is a sudden, excessive, uncontrolled electrical activity in the brain that results in motor or sensory symptoms or changes in emotions, cognition, or autonomic functions (Epilepsy Foundation of America, 2018d). If the electrical activity in a person's brain reaches a certain threshold, the person will have a seizure. A seizure may be due to a high fever, ingestion of certain drugs or poisons, alcohol or drug withdrawal, certain metabolic conditions, or chemical imbalances. Seizures may also be the result of a prenatal or perinatal brain injury, head trauma, lasting effects of infections such as meningitis, congenital malformations, or unknown causes (Epilepsy Foundation of America, 2018d). A person has a

seizure disorder, also known as **epilepsy**, when the seizures are recurrent.

seizure A sudden, temporary change in the normal functioning of the brain's electrical system due to excessive, uncontrolled electrical activity in the brain.

epilepsy A chronic condition in which the person has reoccurring seizures.

There are several types of seizures. Seizures may be characterized by altered consciousness, motor activity, sensory phenomena, inappropriate behaviors, or some combination of these. The type of seizure depends on the location in the brain where the abnormal electrical activity begins and the symptoms that result. The International League Against Epilepsy (Fisher et al., 2017) recently revised the classification system for seizure types in an effort to increase transparency of naming while providing better descriptions of symptoms. The three categories of seizures include (1) focal onset, where seizure activity begins in one area on one side of the brain; (2) generalized onset, where the seizure activity begins on both sides of the brain at the same time; and (3) unknown onset, where the seizure activity is not observed or the onset is not able to be identified (Epilepsy Foundation of America, 2018c; Fisher et al., 2017). The three most common types of seizures include a focal onset type (focal onset impaired awareness) and two generalized types (absence and tonic clonic).

In a **focal onset impaired awareness seizure**, consciousness is impaired, and the person usually exhibits a series of motor movements that may appear voluntary but are beyond the person's control. For example, some individuals having a focal onset impaired awareness seizure will appear dazed and engage in purposeless motor activity such as walking aimlessly, picking up objects, or picking at their clothing. Some individuals may start laughing, gesturing, or repeating a phrase. Whatever the person's particular pattern, the same pattern usually will be repeated with each seizure. In other words, if a child picks at her clothing when having a focal onset impaired awareness seizure, then she probably will exhibit picking at clothing each

time a seizure occurs. The person having a focal onset impaired awareness seizure will not respond to external stimuli such as vocal commands.

focal onset impaired awareness seizure A type of seizure that begins in one part of the brain whereby the person exhibits purposeless motor activity for a brief period of time; consciousness is impaired.

Absence seizures (formerly known as *petit mal* seizures) are generalized onset seizures because both sides of the brain are affected. An individual having an absence seizure will suddenly lose consciousness, stop moving, and stare straight ahead (or the eyes may roll upward). The person will not fall, but simply stop and appear to be in a trance. Typically, these seizures are brief, lasting only seconds, and interrupt any ongoing activities. Often the person is not aware of what has happened. When the seizure occurs during a teacher's lecture, the student often does not understand why the teacher is suddenly talking about something different. These seizures have been mistaken for daydreaming, but the individual cannot be brought out of the seizure by touch or sounds. For example, a child having an absence seizure will not respond when being called by his or her name. Absence seizures are often first noticed by an observant teacher who realizes that the student is not simply daydreaming.

absence seizure A type of generalized onset seizure whereby the individual loses consciousness and stops moving for a very brief time.

Figure 14.4 Seizure Observation Record

EPILEPSY FOUNDATION **Seizure Observation Record**

Student Name:				
Date & Time				
Seizure Length				
Pre-Seizure Observation (Briefly list behaviors, triggering events activities)				
Conscious (yes/no/altered)				
Injuries? (briefly describe)				
Muscle Tone/Body Movements	Rigid/clenching			
	Limp			
	Fell down			
	Rocking			
	Wandering around			
	Whole body jerking			
Extremity Movements	(R) arm jerking			
	(L) arm jerking			
	(R) leg jerking			
	(L) leg jerking			
	Random Movement			
Color	Blush			
	Pale			
	Flushed			
Eyes	Pupils dilated			
	Turned (R or L)			
	Rolled up			
	Staring or blinking (clarify)			
	Closed			
Mouth	Salivating			
	Chewing			
	Lip smacking			
Verbal Sounds (gagging, talking, throat clearing, etc.)				
Breathing (normal, labored, stopped, noisy, etc.)				
Incontinent (urine or feces)				
Post-Seizure Observation	Confused			
	Sleepy/tired			
	Headache			
	Speech slurring			
	Other			
Length to Orientation				
Parents Notified? (time of call)				
EMS Called? (call time & arrival time)				
Observer's Name				

Please put additional notes on back as necessary.

Source: Used by permission, American Epilepsy Foundation. © 2019.

Tonic-clonic seizures (formerly known as *grand mal* seizures) are what most people think of when they hear that a person has a seizure disorder. Tonic-clonic seizures affect both sides of the brain, thus impairing consciousness. This type of seizure begins with the individual becoming very stiff and then having continuous rhythmic jerking movements that gradually decrease. A person who is standing when the seizure occurs will

drop to the floor and may sustain injuries from the fall. During the seizure, saliva may pool in the mouth and bubble at the lips. Breathing may become shallow or irregular. Often, there is a loss of bladder control. These seizures usually last between two and five minutes. After the seizure, the student may be slightly disoriented at first and not realize what has happened. The person usually is exhausted and will need to rest. There are many misconceptions of what to do when this type of seizure occurs. See the accompanying Strategies for Effective Teaching and Learning feature for information on the steps to take when a tonic-clonic seizure occurs.

tonic-clonic seizure A generalized type of seizure whereby the individual loses consciousness, becomes very stiff, and then begins making rhythmic jerking motions.

The most common treatment for seizures is medication. Other treatments may be used when the seizures are severe and cannot be controlled by medication, such as surgery on part of the brain, special diets, and electrical stimulation of the vagus nerve (Zelleke, Depositario-Cabacar, & Gaillard, 2019). However, these treatments are not always effective, and seizures still may occur.

It is important for teachers to know the steps to take when seizures happen. A student with a seizure disorder should have an individualized health care plan, also called a seizure plan, that provides school personnel with the child's medical information (such as medication side effects) and emergency care procedures. All school personnel who work with the student or supervise the child (for example, teachers who provide supervision in the cafeteria) should receive a copy of the emergency care procedures and training on what to do if a seizure occurs. Teachers who observe and assist with a student's seizure often are asked to complete a seizure observation form that describes observable symptoms of the seizure (what it looked like), the length of the seizure, and other relevant information (see Figure 14.4). Teachers need to be supportive of the child and try to minimize embarrassment especially when there is a loss of bladder control. Often, classmates will be scared or have an inaccurate understanding about a peer who has a seizure disorder. It is important that teachers help children understand seizures using age-appropriate language.

Strategies for Effective Teaching and Learning
Steps for Teachers to Take When a Tonic-Clonic Seizure Occurs

What to Do

- Stay calm; note time of onset.
- Move furniture out of the way to prevent injury.
- Loosen shirt collar and put something soft under head.
- Turn student on his or her side to allow saliva to drain out of mouth.
- If seizure continues for more than five minutes, or if multiple seizures occur one right after another, or if this is the first seizure, call for an ambulance.
- If seizure stops but the student is not breathing, give mouth-to-mouth resuscitation (this rarely occurs).
- After the seizure is over, reassure student.
- Allow student to rest.

What Not to Do

- Do not put anything in the mouth.
- Do not restrain movements.
- Do not give liquids immediately after a seizure

2. **Asthma.** **Asthma** is the most common chronic condition among children in the United States, affecting over 6 million individuals under age 18 (American Lung Association, 2018). With asthma, the airways in a person's lungs are extra sensitive to stimuli in the environment. Children who have asthma breathe normally until they come in contact with a substance or situation that triggers an asthma attack, such as dust, chemicals, smoke, cold weather, pollen, animal dander, or exercise. When an asthma attack occurs, the person has difficulty breathing as the space for air to move in and out of the lungs constricts and makes breathing even more difficult. Symptoms of an asthma attack include shortness of breath, wheezing, coughing, and labored breathing.

asthma A chronic lung disease that causes restriction of a person's airways upon encountering a trigger, leading to shortness of breath, coughing, and wheezing.

Asthma is generally treated by reducing exposure to environmental triggers and by taking medication. These should be identified in the student's individualized health care plan along with any medication side effects and the emergency procedures to follow when an asthma attack occurs. Teachers need to be knowledgeable about the individual's asthma triggers and, when possible, reduce or remove them. For example, if being too close to the classroom hamster precipitates an attack, the hamster should be removed or placed in a different location. If exercise is a trigger, the student may need adaptations during physical education. Medication may be taken on a regular basis to decrease the possibility of an asthma attack. Many students use a prescribed inhaler (medication delivered in a spray form)

when an asthma attack happens. It is important that the inhaler be used immediately at the onset of an attack, requiring that the inhaler be readily accessible. If the student goes on a field trip, for example, the inhaler needs to be with the student.

For most students, the asthma attack will stop once the inhaler is used. However, for some pupils, the inhaler will help but not stop the attack. Although it is rare for an asthma attack to be fatal, it is a possibility. If the pupil is experiencing severe respiratory distress, an ambulance should be called. Teachers should understand that many asthma medications are stimulants and may cause the student to experience hyperactivity, shakiness, and difficulty paying attention. Additionally, teachers should have a plan to assist the student in completing missed work due to absences related to asthma.

Infectious Diseases

Several infectious diseases fall under the heading of other health impairment. Some infectious diseases are readily transmittable (such as tuberculosis); others may pose little to no threat in the school environment (such as HIV/AIDS). Teachers, however, should practice standard precautions year-round regardless of whether or not they know a student has an infectious disease. **Standard precautions** (Centers for Disease Control and Prevention, 2018d) are a set of commonsense infection control procedures recommended for patient care in medical facilities. Since schools are a prime place for infections to spread, schools should implement the relevant prevention practices all of the time.

standard precautions Guidelines for the prevention of spreading infectious illnesses.

To help prevent the spread of any infectious illness, all school personnel should (a) practice proper handwashing hygiene (wash all surfaces of the hands thoroughly for an adequate length of time); (b) teach and follow respiratory etiquette (sneezing or coughing into a tissue or bent elbow); (c) clean and disinfect surfaces and equipment frequently following

recommended procedures; and (d) follow additional recommendations (wearing gloves or facemasks) when working with students who require help that may bring the adult in contact with bodily fluids (Centers for Disease Control and Prevention, 2018d). School personnel should use these precautions with all students and not single out or treat pupils with infectious diseases differently. Educators should, however, be aware of a student's condition and provide needed supports. Although the prevalence among young children has decreased, one infectious disease that still has a presence in schools is HIV/AIDS.

acquired immune deficiency syndrome (AIDS) An infectious disease caused by HIV (human immunodeficiency virus) that destroys the immune system, leaving the person open to serious, life-threatening illnesses.

Acquired immune deficiency syndrome (AIDS) is caused by the human immunodeficiency virus (HIV), which destroys the immune system, leaving the person open to serious, life-threatening diseases (such as *Pneumocystis jirovecii*, previously known as *Pneumocystis carinii*, pneumonia). Transmission generally occurs in one of three ways: (1) having sex with an infected partner, (2) sharing contaminated needles during drug use, and (3) passing on the infection from mother to infant. It cannot be acquired through casual contact because it is transmitted only in blood, semen, vaginal secretions, and breast milk (Centers for Disease Control and Prevention, 2018c). Because it is not transmitted in saliva, even sharing toothbrushes or kissing will not transmit the infection.

Some children acquire the infection from their mother while in the womb; fortunately, treatment during pregnancy of mothers with HIV has reduced the risk of infants being born with HIV to as low as 1 percent (Centers for Disease Control and Prevention, 2018c). Adolescents, on the other hand, may acquire the infection from having sex with an infected partner or by sharing needles during drug use. Children born with HIV may have developmental delays, motor problems, nervous system damage, and additional infections. Adolescents acquiring the disease may also develop life-threatening infections, nervous system abnormalities, and other impairments (such as visual impairments). Treatment consists of a

combination of medications that may slow the disease’s effect on the immune system.

Initially, children with AIDS usually do not need any adaptations in the school setting. However, as the disease progresses, they may require some adaptations because of fatigue and frequent absences. A supportive attitude should be in place, especially given the social stigma that still surrounds the disease. Misconceptions that students or teachers have should be dispelled with accurate, up-to-date information.

Characteristics of Students With Deaf-Blindness

Describing the characteristics of students with deaf-blindness is a difficult task. This is an extremely heterogeneous population varying tremendously in individual needs, abilities, and educational requirements. Students with deaf-blindness greatly vary in their combinations of hearing and vision loss while their intellectual abilities are often equally diverse. Additional disabilities such as cerebral palsy or seizures are common (Downing & Eichinger, 2011).

In addition to impaired hearing and vision, speech and language impairments along with behavioral and social difficulties are typical of individuals who are deaf-blind. These deficits are frequently a result of the person's inability to learn by observing and listening to others and his or her inability to understand language and effectively communicate with others (Miles, 2018). In addition to problems with communication, difficulties navigating the environment are common. The restrictions and challenges represented by these two areas usually lead to feelings of isolation among children and adults who are deaf-blind (Hartshorne & Schmittel, 2016).

Assessment of Students With Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities

For students with physical and health disabilities, assessments required for eligibility differ in that medical documentation often plays a large role. First and foremost, a student will need a medical evaluation by a licensed physician who provides a diagnosis of the student's physical or health condition. The medical evaluation typically will include important information such as medications, surgeries, special health care procedures, and special diet or activity restrictions. Sensory deficits should also be noted.

Once a medical diagnosis confirms a physical or health disability, a determination needs to be made as to whether the disability has an adverse impact on the student's educational performance. A comprehensive educational assessment (or, for preschool children, a developmental assessment) should be performed to determine the educational effects of the physical or health disability. The precise educational assessment instruments will vary according to the student's age and abilities. Assessments will document deficits in areas such as pre-academic functioning, academic functioning, adaptive behavior, motor development, language and communication skills, and social/emotional development.

> First and foremost, students with physical and health disabilities will need a medical evaluation by a licensed physician who provides a diagnosis of the student's physical or health condition.

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A psychological evaluation may be given if there is a significant deficit in academic or cognitive functioning. However, it is often very difficult to evaluate cognitive abilities when the student has severe physical disabilities and is unable to speak. This is especially the case when the student has not yet learned to use a communication device or cannot do so reliably because of severe motor constraints. Psychological and educational misdiagnosis and misplacement do occur, as they did in the case of Natalie.

If the educational evaluations demonstrate that the student's physical or health disability is affecting his or her educational performance, a decision will be made regarding which educational category is most appropriate: orthopedic impairment, multiple disabilities, traumatic brain injury, or other health impairment. Additional assessments will be performed based on the medical and educational evaluations. If the student has a physical disability, motor assessments may be conducted by a physical or occupational therapist. If the pupil has trouble communicating, a speech–language pathologist will conduct assessments to determine the student's communication abilities and needs at school. If the individual has trouble accessing instructional activities, materials, or assessments, an assistive technology assessment may be performed by the special education teacher in conjunction with the educational team, or the school system may have an assistive technology specialist or team of specialists. If the student requires specialized health care procedures, such as tube feeding, an individual health care plan will be developed, and the student will be assessed to determine if he or she can be taught to perform the procedure. Depending

on the student’s needs, other assessments may be performed to determine appropriate educational services for the student.

Assessment of Students With Deaf-Blindness

The low incidence nature of deaf-blindness coupled with the scarcity of appropriate assessment instruments presents a unique set of challenges to teachers and other professionals (Dalby et al., 2009). A team of individuals typically is needed to accurately assess the student with deaf-blindness. Valid assessment of individuals with deaf-blindness dictates collaboration among family members and professionals. The key is to conduct multiple assessments over both time and contexts.

Unfortunately, norm-referenced assessments are of little value when assessing students with deaf-blindness. Criterion-referenced tests, developmental scales (frequently normed on children without disabilities), and informal observations often yield useful information but may still have limitations. Experts recommend that assessments focus on what the child *has* learned as well as what he or she *needs* to learn (Durando, Chen, & Petroff, 2017). Teachers may use authentic assessment to gain useful information. This involves obtaining information about the child during normal activities and across environments to determine what the student knows and the types of situations and settings that assist the child with deaf-blindness to learn (Gargiulo & Kilgo, 2020; Malloy, 2010; Rowland, 2009). Also, tools are available to assess students that focus on desired outcomes. For example, the Assessment Intervention Matrix (Wolf-Schein & Schein, 2009) focuses on basic daily living skills as well as housekeeping and food preparation.

Educational Considerations

Educational considerations for individuals with physical or health disabilities include the setting in which each student can receive an appropriate education, the impact of the physical or health disability on the student’s school performance, and the best ways of meeting the student’s needs in the educational setting.

Where Are Students With Physical or Health Disabilities Educated?

Students with physical and health disabilities are educated in a variety of settings, ranging from a general education classroom to a home or hospital setting, with several other settings in between (such as resource room, separate class, separate school, and residential facility). The appropriate setting is determined by the educational team based on student assessments, educational goals, and planned interventions. For example, one student with cerebral palsy who has limited verbal speech may need special education services addressing reading and writing and attend a resource room for part of the day to learn how to use an assistive technology device and receive specialized literacy instruction. Another pupil with cerebral palsy may be successful in general education classes with only consultative services from a teacher with expertise in orthopedic impairments. A third student with cerebral palsy may be several grade levels behind in all areas; this individual may need to be in a separate class to meet his or her educational goals. Some children may have such severe health problems that home-placement instruction is necessary; in this case, a teacher goes to the student's house to provide instruction.

Educational placement of students with physical and health disabilities varies greatly across the IDEA categories of orthopedic impairment, multiple disabilities, traumatic brain injury, other health impairment, and deaf-blindness (see Figure 14.5). The largest number of students with orthopedic impairment are educated in the regular classroom (52.6%), followed by a separate class (23.5%) and resource room (15.4%). This is not surprising, as most pupils with physical disabilities do not have additional cognitive impairments. However, when the student's physical disability is severe, additional support is often needed and may be provided in a resource room or separate class.

In contrast, the most common placement for students with multiple disabilities is a separate class (45.5%), followed by a resource room

(16.8%) and then the regular classroom (13.7%). Students with multiple disabilities often have severe physical disabilities with concomitant severe intellectual disability. Although many states are trying to phase out separate schools, they remain part of the range of options available to students.

Students with traumatic brain injury vary greatly in the severity of injury and the effects on the individual. Five out of ten pupils with traumatic brain injury are served in the regular (general education) classroom, with placement in a resource room (21.6%) or separate class (19.8%) about equal. Functioning often improves during the first few years after injury, and the educational placement often changes over a fairly short period of time.

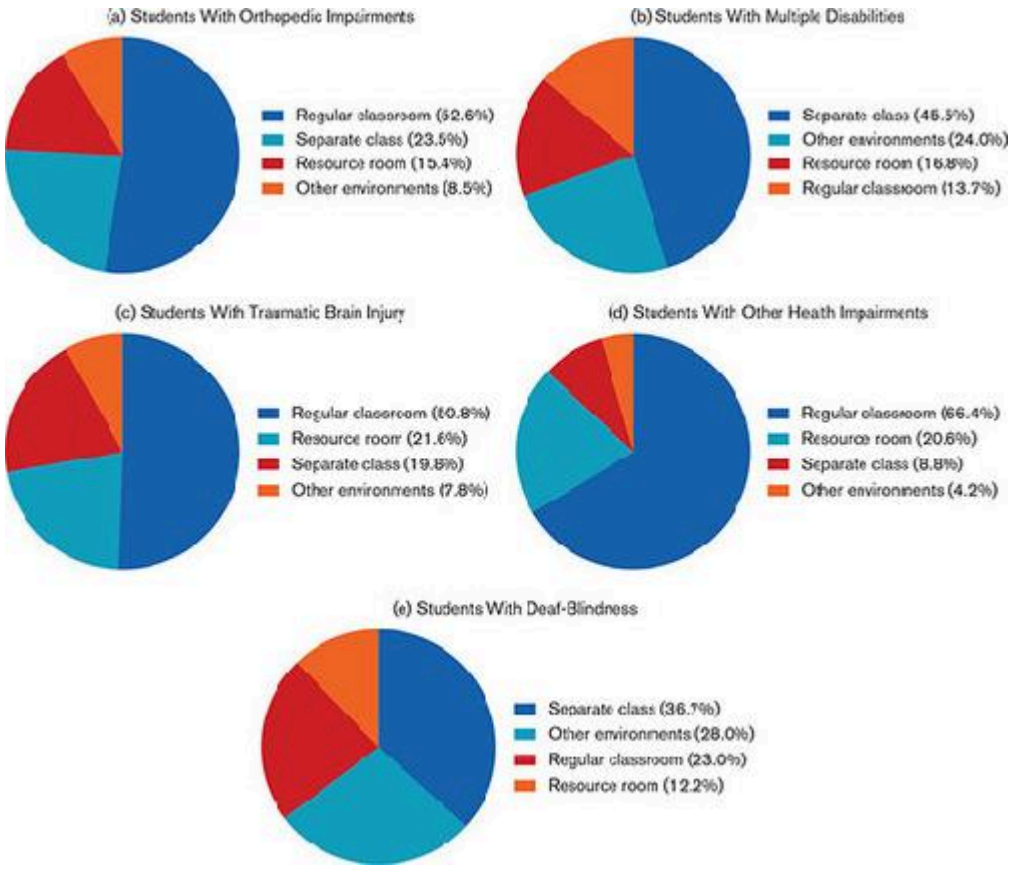
Like pupils with orthopedic impairments, students with other health impairments are typically educated in the regular classroom (66.4%). However, frequent absences, fatigue, inattention, pain, and other health-related factors often result in a need for placement in a resource room (20.6%) or separate class (8.8%).

At this time, individuals who are deaf-blind are often educated in more restrictive settings. Only about one in four students with deaf-blindness (23.0%) are educated in the regular classroom, while over half of these students receive a special education in either a separate class (36.7%) or other environments (28.0%).

Impact on School Performance

Several variables affect school performance for a student with a physical or health disability. The Physical and Health Disabilities Performance Model (Heller, 2009) provides a visual representation of these variables. The variables are divided into three major areas: type of disability, functional effects, and psychosocial and environmental factors (see Figure 14.6). Students with physical or health disabilities typically will have one or more problems in each of these major areas, and their interaction can negatively affect the students' school performance. A better understanding of these areas and how they affect each child will help the teacher and the educational team make appropriate decisions regarding educational objectives and necessary modifications.

Figure 14.5 Educational Placement of School-Age Students With Physical Disabilities, Health Disabilities, or Deaf-Blindness



Note: Figures represent percentage of enrollment of students ages 6–21 with physical disabilities, health disabilities, and deaf-blindness during the 2016–2017 school year. Other environments represent placement in a separate school, residential facility, homebound/hospital environment, correctional facilities, or parentally placed in private schools.

Information based on data from forty-nine states, the District of Columbia, Puerto Rico, Bureau of Indian Education schools, and outlying areas. Data for Wisconsin not included.

Source: U.S. Department of Education. (2018). *Fortieth annual report to Congress on the implementation of the Individuals with Disabilities*

Education Act, 2018. Washington, DC: U.S. Government Printing Office.

The first major area to affect student performance is the type of disability. Pupils with orthopedic impairments, for example, may have problems accessing materials while students with other health impairments are more likely to have problems with endurance and stamina. The severity of the specific disability will also be a factor. The teacher will need to be familiar with the student's specific disability, its severity, and its implications for academic performance.

The second area that affects student performance is the functional effects of the disability. This area is divided into seven categories: (1) atypical movements and motor abilities, (2) sensory loss, (3) communication impairments, (4) fatigue and lack of endurance, (5) health factors, (6) experiential deficits, and (7) cognitive impairments and processing issues (Heller, 2009). These seven categories illustrate the multiple variables that can impact school performance. The effect on the student will vary individually based on factors such as the specific disability and its severity. Several examples of how these areas can affect school performance are identified in Table 14.3.

Figure 14.6 Physical and Health Disabilities Performance Model

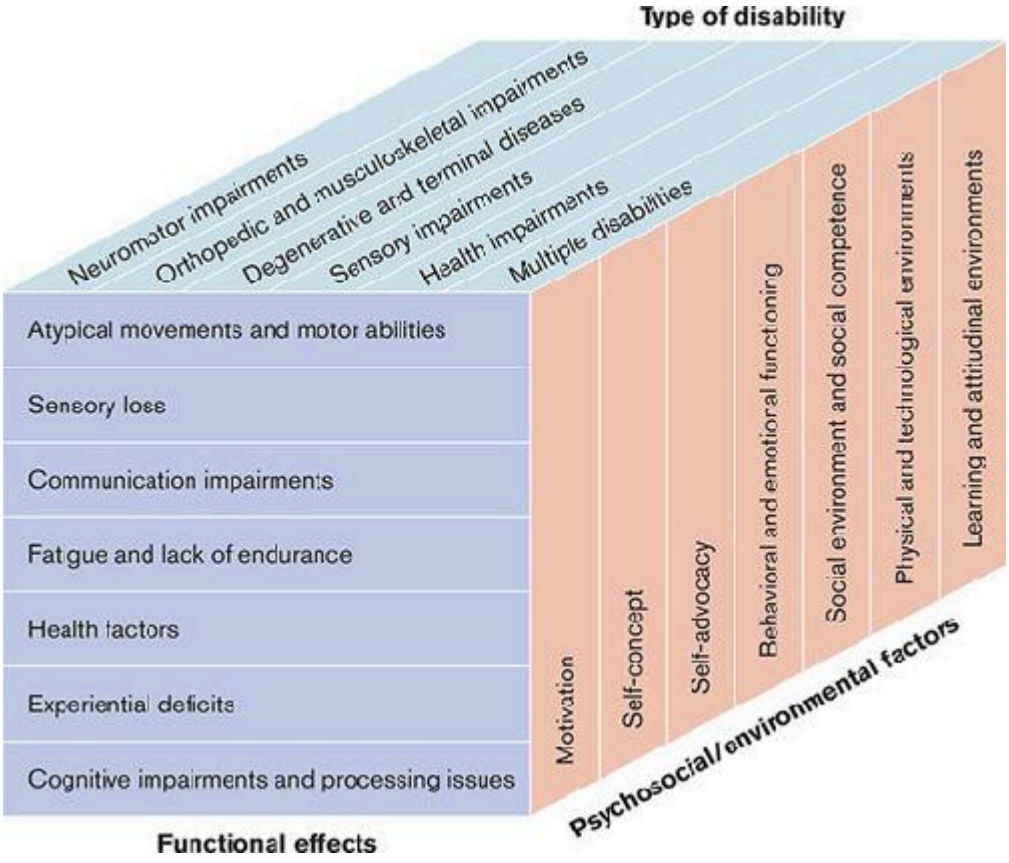


Table 14.3 Impact on School Performance: Functional Effects

Table 14.3 Impact on School Performance: Functional Effects

Functional Effects of the Disability	Examples of How School Performance Can Be Affected
1. Atypical Movements and Motor Abilities	Inaccurate, difficult, slow, or restricted arm movements can negatively affect access to school materials (e.g., inability to use a keyboard). Even with proper adaptations, school performance may be affected (e.g., can only type 12 words a minute with an adapted keyboard).
2. Sensory Loss	Many physical disabilities have an increased incidence of sensory impairments (e.g., vision

Functional Effects of the Disability	Examples of How School Performance Can Be Affected
	loss), which can affect student performance.
3. Communication Impairments	Even with an augmentative communication device, asking and answering questions may be limited due to what is programmed into the device or due to the student still learning to use the device accurately.
4. Fatigue and Lack of Endurance	For some students, fatigue can be so severe that they need rest breaks throughout the day or a shortened school day, which can impact the amount of school material learned.
5. Health Factors	Students experiencing pain or discomfort from their conditions (e.g., juvenile idiopathic arthritis) or from their devices (e.g., poorly fitted wheelchair) will not be able to attend well to the lessons being taught. Frequent illness or surgeries may also result in extended absences.
6. Experiential Deficits	Some students with physical disabilities will lack common experiences due to physical or motor issues that their peers usually have acquired. These missed experiences or concepts can be important for school success.
7. Cognitive Impairments and Processing Issues	Although students with physical disabilities can be gifted or have IQs in the normal range of intelligence, there is an increase in cognitive impairments and processing issues (e.g., memory, organization, perception, motor

Functional Effects of the Disability	Examples of How School Performance Can Be Affected
	planning) with certain physical disabilities that will affect school performance.

Making Inclusion Work
Individuals With Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities

My inspiration and passion for teaching special education stems from a lifetime of experience: growing up with a sister with severe cerebral palsy who spent time in many different programs in the school system. I began my professional career teaching in a K–1 class for students with moderate, severe, and profound intellectual disabilities after graduating with a degree in intellectual disability. After four years in that setting, I completed my master's degree in orthopedic impairments (OI). I then taught students with orthopedic impairments at the high school level for eight years. Most of my students were fully included in the general education curriculum and were college or career bound. Other students were partially included in the general elective curriculum. Since that time, I completed my PhD in physical disabilities and have worked with many educators who teach pupils with orthopedic impairments.

Inclusive Education Experience

In most cases, I favor inclusive education for students whose primary disability is physical. It is much easier to justify making physical modifications and accommodations for access to the general curriculum than it is to justify removing students due to modification and accessibility difficulties. Many different models exist for including students, ranging from intermittent checkups with the teacher to random student observations to having full-time assistance from either the OI teacher or a paraprofessional. Using an inclusion model allows teachers to collaborate, problem-solve, and inspire each other creatively. It also exposes teachers and students to a variety of teaching and learning styles. Because of multiple needs in the classroom, information is often explained in a variety of ways, and information is often presented through different modalities. Many students shine when they are given access to experiences they have not had before because of their physical limitations. Classmates are given the opportunity to look past the students' physical limitations and see their capabilities. The benefits for all students in the inclusive environment are reciprocal.

I have often run into lowered expectations and skepticism about the students' abilities. This is when it is necessary to get into the classroom and prove students' capabilities. The negativity usually doesn't last long. Another problem arises when students in inclusive environments use assistive technology (AT). Although AT often equalizes access, it can be tremendously frustrating as well. Some of the most common initial problems with inclusive OI are the general education teachers' fears of not being supported, fears of not knowing how to interact or communicate with the student, and concerns over assistive technology use. Associated medical problems can be intimidating as well. One way to overcome these problems is through education, training, and modeling by the OI teacher.

Strategies for Inclusive Classrooms

A good schedule can make it or break it, so scheduling is first and foremost. Schedule your students to allow for the most support from you. This might mean manipulating everyone's schedule multiple times. It is imperative that the lines of communication between collaborating teachers be two-way. It is the responsibility of the special education teacher to communicate the specific needs of the students in the class to the general education teacher. It is not solely the general education teacher's responsibility to provide instruction. Here are some helpful hints:

Provide the general education teacher with modifications and strategies driven by the student's individualized education program for success, as well as emergency plans. Encourage the general education teacher to keep these strategies and plans in his or her grade book or another high-use area for quick reference.

Discuss expectations of the student and each teacher or paraprofessional supporting the student before beginning collaborative teaching.

Successful Collaboration

Successful collaboration means that the teachers have developed a good, professional working relationship and that all students have been enriched by the collaborative activities. This begins with open communication and effective planning. The structure of the class typically comes from the classroom teacher, with adaptations and individualization provided by the OI teacher. It is important, however, for both teachers to be able to switch roles and interact with all students in the class.

Working With Parents and Families

I have had the unique advantage of being on both sides: family and school system. As difficult as it might be, encourage the family to plan for the future early. Along with the parents, define realistic expectations for the students and strive to meet them. Parents know their children better than anyone. Listen to them and be sensitive to their needs. Establish how you will communicate with the parents regarding timelines, grades, progress, and parent–teacher conferences.

Advice for Making Inclusion and Collaboration Work

Transitioning into teaching in the OI classroom can be overwhelming. Teachers are always multitasking, supporting multiple students with multiple disabilities across multiple subjects in the same classroom at the same time. Trying to keep up with the pace of regular education while trying to work in extended time, technology, individualization, and physical access can be a vast undertaking. The best advice is to stay organized and stay focused on the needs of the students and on providing the best education in the most productive and appropriate learning environment possible.

—Jennifer Tumlin Garrett, PhD

Former Educator of Students With Orthopedic Impairments Currently Sibling Coordinator Georgia Sensory Assistance Project University of Georgia, Athens

The third area that can affect school performance—the third dimension in Figure 14.5—consists of seven psychosocial and environmental factors: (1) motivation, (2) self-concept, (3) self-advocacy, (4) behavioral and emotional functioning, (5) social environment and social competence, (6) physical and technological environments, and (7) learning and attitudinal environments (Heller, 2009). Each of these factors is shaped by the pupil's personality, the student's reaction to his or her disability, and the attitudes and reactions of those in the student's environment. The availability of appropriate technological and educational support to increase the accessibility of the learning environment is also important. Table 14.4 provides several examples and explanations of how these factors can affect school performance.

Meeting Educational Needs

Meeting the educational needs of individuals with physical or health disabilities requires several types of adaptations. These will be discussed under four main headings: (1) physical/health monitoring, (2) adaptations, (3) specialized instructional strategies, and (4) specialized expanded curriculum areas.

Physical/Health Monitoring

It is the responsibility of teachers and school officials to maintain a safe, healthy environment for their students (DPHD Critical Issues and Leadership Committee, 2018). Maintaining a safe, healthy environment includes having efficient evacuation plans, school emergency procedures, and proper infection control procedures, as well as ensuring teachers are trained in CPR and first aid.

Teachers must be aware of each student's physical and medical needs, how to monitor the student's impairment(s) for problems, and the procedures to follow if a problem occurs. For example, if a pupil has a tonic-clonic seizure, the teacher should know the emergency care plan and be able to assist the student immediately. Some children may have health care procedures such as tube feeding (being fed through a tube that goes into the stomach) or suctioning (inserting a tube to get out respiratory secretions), and the teacher should know what to do if any problems occur due to the health care procedure (Heller & Avant, 2011). Some monitoring may be subtler, such as picking up signs that the student with muscular dystrophy is deteriorating and may need further adaptations. Good communication and collaboration with the nurse, special education teacher, parents, and team will be important in planning for any anticipated problems that might arise.

Table 14.4 Impact on School Performance: Psychosocial and Environmental Factors

Table 14.4 Impact on School Performance: Psychosocial and Environmental Factors

Psychosocial and Environmental Factors	Examples of How School Performance Can Be Affected
1. Motivation	Lack of motivation may be present due to other priorities over health issues or degenerative changes. Students may also lack motivation due to learned helplessness. These would all affect school performance.
2. Self-Concept	A poor self-concept may occur due to difficulty mastering tasks from the effects of a physical disability or due to the way others treat the student. This may interfere with school performance.
3. Self-Advocacy	Students who do not operate/act as advocates for themselves in the classroom may not have adequate access to material to succeed in school (e.g., student with a severe physical impairment can't see the board due to poor wheelchair positioning and does not ask to be repositioned). Lack of self-advocacy skills can also be life-threatening (e.g., student with diabetes does not tell substitute teacher she has to have a snack).
4. Behavior and Emotional Functioning	A negative impact on school performance often occurs with students who have difficulty coping with their disability and who exhibit such emotional problems as depression, anger, or hopelessness.

Psychosocial and Environmental Factors	Examples of How School Performance Can Be Affected
5. Social Environment and Social Competence	Students may have difficulty socializing due to misunderstandings about their disability or due to delayed or maladaptive social functioning. A poor social environment may impact the student's performance in school.
6. Physical and Technological Environments	If proper accommodations and assistive technology are not in place for students with physical disabilities, their ability to succeed in the school environment will be negatively impacted.
7. Learning and Attitudinal Environments	Performance may be affected if there are negative attitudes toward the student or if proper educational supports and adaptations are not in place.

Adaptations

Several adaptations may be needed to ensure that students with physical or health impairments are getting what they need to succeed in school. The types of **adaptations** typically utilized by these students include changes to the environmental arrangement, strategies for increasing communication, instructional and curricular adaptations along with assistive technology for specific content areas, class participation, assignments, and classroom tests.

adaptations Changes that increase participation or independence in instructional activities while not lowering achievement expectations.

Often, the special education teacher completes a checklist of needed adaptations for each individual with a physical or health disability and then

discusses it with the general education teacher and other school personnel. Using a checklist helps ensure that the most appropriate adaptations have been considered and that everyone is using the same adaptations across all learning environments.

Classrooms, and other environments, must be arranged so as to allow ease of access for students with physical and health disabilities.

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1. **Environmental Arrangements.** Several types of environmental adaptations may be needed to accommodate a student with a physical or health impairment. Fatigue or endurance issues may necessitate an adapted day (for example, a shorter day), rest breaks, or classrooms in close proximity to decrease travel time between classes. A student with very severe health issues may need a homeroom near an exit for easy access to an ambulance. In the classroom, a pupil may need widened aisles for wheelchair access or preferential seating in order to see the teacher or the chalkboard. In some cases, the student will need a special chair or desk to accommodate physical limitations. An individual with restricted or impaired arm movement may need classroom materials to be positioned in a certain location or stabilized so they do not roll around.
2. **Communication.** Most pupils with physical and health disabilities will not require adaptations in the area of communication. Some students,

however, such as those with severe cerebral palsy, often have speech that is not understandable. In our chapter opener, Natalie was able to communicate approximately 30 words or sounds that could mean up to 200 different things depending on the context. Her use of an augmentative communication device opened up her world by allowing others to understand her.

It is very important that the teacher understands how the student communicates and how the teacher should present questions. Augmentative communication devices, for example, may range from a notebook with printed pictures to highly sophisticated devices with voice output capacity that may be used in conjunction with the various sounds or words that the student can say. Teachers may need to ask questions giving answers in a multiple-choice format. For instance, the teacher may ask the class, “On which mountain did the expedition take place?” Susan, a pupil with severe cerebral palsy, indicates she knows the answer. The teacher calls on her and asks, “Susan, is it (a) Mount Rainier, (b) Annapurna, (c) Mount Saint Helens, or (d) Mount Everest?” Upon hearing the correct one, Susan points to the *d* on her device to indicate her answer. General and special education teachers need to determine jointly the most effective communication strategy for the student and record it on an adaptation checklist.

3. **Instructional and Curricular Adaptations.** Often, individuals with physical and health disabilities will require instructional and curricular adaptations. Adaptations in this area may include providing a study outline, extra repetition, increased feedback, or additional time to complete assignments and assessments. Students with physical disabilities who have speech or language impairments are often behind in reading and may require adaptations. This might involve providing outlines at a reading level that the pupil can understand or using alternative textbooks that are easier to follow. Sometimes individual instruction from a special educator will be necessary. Materials may need to be altered for accessibility (such as a calculator with larger keys) and the curriculum modified to address the student’s educational needs as stipulated in his or her individualized education program (IEP). Some pupils may need help with organizational skills while

others may require two sets of books because they are not physically capable of carrying their books back and forth between home and school.

4. **Assistive Technology for Specific Content Areas.** Often students will require adaptations or assistive technology to access different school subjects. For example, to make a computer accessible for writing, some students with cerebral palsy may need to use a larger keyboard with bigger keys to increase keyboarding accuracy. A pupil who has limited fine motor skills may need a larger calculator while a student with low vision may need a talking calculator. An individual with a spinal cord injury may access the computer by using a speech recognition program in which the words appear on the screen as the student speaks into a microphone. In Natalie's case, she needed to use her augmentative communication device as a keyboard that connected to the computer in order to write.

5. **Class Participation.** Some adaptations may be needed to allow a student with a physical or health disability to participate in class. It is important to determine how the pupil will gain the teacher's attention, especially if he or she is unable to raise his or her hand. Some individuals may need extra time to respond to a question in class because of motor difficulties using an augmentative communication system. Some teachers will patiently wait for the student's response; other teachers may elect to give the student questions that will be asked the next day in class so the pupil can program his or her augmentative communication device with the answers. In other instances, it is more appropriate to ask questions using a multiple-choice format, as described previously.

6. **Assignments and Tests.** Some learners will need assignments and tests adapted because of fatigue and endurance issues—either because of a health problem or because of the physical effort involved in completing an assignment or a test. Assignments may need to be abbreviated or divided into shorter segments, or the student may require additional time. A pupil may be offered alternative ways to complete an assignment or a test, such as using a computer or orally dictating the answers instead of writing them. Students may be unable to complete several essay questions because of the time and effort

required to complete one question. For example, a pupil with severe spastic quadriplegic cerebral palsy may take twenty minutes to type two sentences when using an alternative access device for a computer. In these cases, the individual may be given an alternative format such as multiple choice or short answer.

7. **Other Adaptations.** Some students may need adaptations in the areas of mobility, using the bathroom, and eating. If a party is given in class, the teacher needs to know if a student needs a special spoon or a special feeding technique. If a pupil needs to use the restroom, the teacher needs to know if he or she requires assistance. Advanced planning is necessary to determine what type of assistance the individual needs and who will provide that help.

Specialized Instructional Strategies

Teachers need to know how to implement **specialized instructional strategies** for students with physical and health disabilities. Such strategies include using special techniques for teaching phonics to students with complex communication needs, adapting assessment procedures, utilizing the student's reliable means of response, using alternative approaches for learning the writing process when alternative-access keyboarding is slow, and supporting chronically ill and terminally ill children. For example, when teaching students with severe speech and physical impairments to sound out a word, the special education teacher may use the Nonverbal Reading Approach (Heller & Alberto, 2010), which teaches the individual who cannot talk to sound out the word using internal speech. Certain math algorithms that do not involve carrying a number may be advantageous for students using computers to write out their work (Heller, 2010). The special educator often uses these specialized approaches when teaching students with physical or health disabilities and can instruct other professionals regarding their use.

specialized instructional strategies Teaching techniques designed specifically for a particular population of students to assist with learning specific material.

Teachers also need to know how to implement specialized strategies to prevent a **communication breakdown**. Often, teachers and students who are using augmentative communication devices will have a communication breakdown—a misunderstanding or misinterpretation of what is being communicated. Heller and Bigge (2010) provide an example of a student (S) who was telling about a party at school, including the refreshments, activities, and people invited. The Boy Scout master (BSM) listened to the details and said, "You must have enjoyed that."

communication breakdown Misunderstanding as to what is being communicated, especially as it relates to individuals who are using some form of augmentative communication.

S: No.
BSM: You didn't?
S: No.
BSM: But you told me all about it. Did something bad happen?
S: No.
BSM: But you didn't enjoy it?
S: No.
BSM: Well, you did go, didn't you?
S: No.
BSM: You didn't! Why not? Were you somewhere else?
S: No.
BSM: Were you ill?
S: No.
BSM: I don't get it, then. (p. 272)

In this example, the student was trying to tell the Boy Scout master about a party that his class had planned, but that had not yet taken place. The Boy Scout master assumed that the party had already occurred.

Several strategies can be used to avoid a communication breakdown. The first is not to make erroneous assumptions that may lead to a breakdown. It is important to clarify or check each part of the information as it is being presented ("We are talking about a party?" "Yes." "At school?" "Yes."

“That your class had?” “No.”). Another strategy is to ask, “Am I missing something?” and then ask by categories, “Is it a person?” “A place?” “A feeling?” “A time?” and so on. It is also important to verify by asking, “Is that exactly right?” This helps to ensure that the teacher is understanding the message correctly. It is equally important for the pupil to have a way of saying, “You are not understanding my message” (Heller & Bigge, 2010).

Specialized Expanded Curriculum Areas

The IEP team will determine the appropriate goals for a student with a physical or health disability. In some cases, a student will be on a general academic curriculum track, while instruction for other learners primarily focuses on a functional curriculum. In either case, pupils may be taught additional curricular areas, referred to as *specialized expanded curriculum areas*. These areas often pertain to technology use, adaptations for independent living, and health care procedures needed because of the student’s particular physical or health disability. For example, a student may be taught how to use a high-tech augmentative communication device. Pupils who require health care procedures (such as tube feeding for nutrition) may be taught how to perform the procedure themselves (Heller & Avant, 2011). Independent living skills (such as cooking, cleaning, shopping, and dressing) often require adaptations; consequently, students will need to be taught how to perform these tasks with adaptations. Other possible specialized expanded curriculum areas include social skills, vocational skills, community skills, mobility skills, and leisure skills.

Recommended Classroom Adaptations

Students with physical and health disabilities often require adaptations to accommodate their specific disabilities. This can include adaptations to the environment, instructional materials, and teaching strategies. Some effective practices are as follows:

- Make environmental adaptations to accommodate students' mobility and seating needs (for example, widened aisles for wheelchairs, seating near side of room with view of board and access to computer, special desk).
- Use adaptations and assistive technology as determined by the special education teacher and educational team to provide access to the learning environment (for example, slant board and stabilization of material on desk, alternative keyboard, augmentative communication device, books and worksheets scanned into computer).
- Assist students with physical disabilities to participate as much as possible in classroom activities requiring a motor response (for example, help student manipulate materials, partner student with peer to assist each other with task).
- Use a variety of systematic instructional strategies that effectively address the student's individual learning needs (for example, learning strategies, content enhancement strategies, antecedent prompts, response prompts).
- Use specialized instructional strategies specifically developed for students with physical disabilities as appropriate (for example, teach students who do not use verbal speech to use internal speech to decode words using the Nonverbal Reading Approach).
- Assist students who use augmentative forms of communication to learn to use their communication devices successfully across learning and social environments during the school day. Also, allow students to answer questions using their most reliable form of communication.
- Allow more time for the student to respond, take tests, or hand in assignments when oral or written communication is affected by his or her disability.
- Adapt assignments or tests to accommodate the student's disability (for example, reduce paper tasks, break up assignments into shorter segments, alternate test or assignment format).
- Maintain a safe, healthy environment by observing for health-related problems and knowing the steps to take should a problem occur (for example, seizure, fatigue, medication side effects).

Source: Adapted from K. Heller and M. Coleman-Martin, "Classroom Adaptations for Students With Physical, Health, and Multiple Disabilities," in K. Heller, P. Forney, P. Alberto, S. Best, and M. Schwartzman (Eds.), *Understanding Physical, Health, and Multiple Disabilities*, 2nd ed. (Upper Saddle River, NJ: Pearson Education, 2009).

Meeting the Educational Needs of Students Who Are Deaf-Blind

Students who are deaf-blind frequently present a variety of instructional challenges for educators. The impact of the loss (or diminished capacity) of both vision and hearing results in significant educational needs. As a result, there are several important areas of instruction for these students, such as teaching concepts and curricular content utilizing effective instructional strategies and adaptations, promoting effective communication, and teaching about the environment and navigation of the environment.

Individuals with deaf-blindness require adjustments to materials and intervention strategies to accommodate their specific needs. This may include enhancing visual, auditory, and or tactile stimuli; using tactile techniques; targeting visual and auditory skills within meaningful contexts; and teaching in small groups, in addition to one-to-one instruction (Downing & Eichinger, 2011). Children and youth with deaf-blindness often will have difficulty learning despite these adaptations due to an inability to access sufficient information to understand fully what is going on around them. To address this problem, some students will have an **intervener**. An intervener is a trained individual who usually works individually with the student, facilitates access of environmental information, and facilitates communication (Alsop et al., 2012).

intervener A person with specialized training and skills in deaf-blindness who provides individualized assistance to students.

Individuals with deaf-blindness require adjustments to materials and intervention strategies to accommodate their specific needs.

AP Photo/Charlie Riedel

As with instruction of other students, the education of pupils with deaf-blindness addresses all domains of learning from concept development to academic subjects. Communication/language, however, is typically a priority area for these students since it is often significantly affected by hearing and vision loss. Effective communication instruction becomes essential to meet their needs.

Communication

Learning to communicate without the ability to hear is probably the most significant challenge that students with deaf-blindness will encounter. Yet it is also their greatest opportunity—for language opens the world to them (National Center on Deaf-Blindness, 2018a). Pupils who are deaf-blind vary tremendously in their communication abilities and consequently their educational needs. Recall that many of these children have some residual hearing and vision, and a few are capable of speech. In many instances, however, touch, gestures, and body movements are the primary form of communication, although some individuals will learn more complex forms of communication, such as sign language.

Because communication is critical to all activities at school, at home, and in the community, it is imperative that the pupil develop an effective and efficient system of communication. This may entail acquiring tactile means

of receptive and expressive communication or developing the student's residual vision and hearing for purposes of communication. Multiple forms of communication are available to both teachers and parents. For instance, if vision is sufficient, some students who are deaf-blind will use the standard manual alphabet (see Figure 12.5, page 388). However, if the pupil's vision is inadequate, the alphabet can be traced in the palm of the individual's hand.

Some of the principal communication systems used with individuals who are deaf-blind include the following:

- Braille
- Fingerspelling
- Large print
- Multiple versions of sign language
- Object symbols (using an object to represent an item or activity—for example, a spoon represents lunch)
- Picture symbols
- Speechreading
- Touch cues (using touch to represent an item or activity—for example, touching the back of one's hand for "give me") (Miles, 2018)

As the student gains competency with nonverbal interactions, symbolic communication becomes a frequent adjunct to the student's system of communication. It is often beneficial to incorporate simple gestures or objects that serve as representations or symbols for various activities. For example, a spoon may indicate mealtime, a small rubber ball could represent recess, and a sweater might mean dismissal time. These representations help the pupil understand that one thing may represent another while also enabling the child to anticipate specific events. Reliable routines are particularly important to individuals who are deaf-blind since they enhance understanding and can reduce anxiety.

Orientation and Mobility

Being able to safely and independently navigate the environment (at school, at home, and in the community) is another major area of emphasis for individuals who are deaf-blind. Mobility training becomes a significant instructional challenge for the orientation and mobility (O&M) specialist when the student exhibits a dual sensory impairment. In some instances, a lack of motivation to explore the world coupled with difficulty in establishing an effective means of communication is but one obstacle confronting this professional. Generally speaking, the earlier the instruction begins, the greater the likelihood that the pupil will be able to successfully move about with confidence and independence.

Collaborative Efforts

It should be obvious from our discussion of these two key areas that multiple professionals are involved in the education of persons with deaf-blindness. It is not unusual to find vision teachers, O&M specialists, interpreters, physical and occupational therapists, special educators, and other professionals all working together to ensure that the individual needs of the pupil are fully met in an integrated and coordinated fashion. Collaboration is imperative for meeting these students' needs.

Technology and Individuals With Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities

Rapidly evolving technologies have changed the lives of many people, but especially individuals with physical or health impairments. With the increase in technology-based jobs, people with physical disabilities have vocational options not previously available to them. Persons with chronic medical conditions have more options for working from home when fatigue and lack of endurance impede commuting or working around large numbers of people due to an impaired immune system. Many students with physical or health impairments require medical technology to sustain life and functionality. Medical technology devices can range from battery-operated pumps that deliver medication to complex, computerized prosthetic arms that allow a student to perform complex hand movements. Other examples of medical technology include inhalers and nebulizers for individuals with asthma, glucose monitoring devices and injection systems for individuals requiring insulin, ventilators for individuals who need additional support to breathe, and gastrostomy tubes and supporting equipment for delivery of nutrition. Teachers should understand the purpose and operating processes for their students' medical technology and know what to do should a problem arise.

Assistive technology has opened doors for students with physical or health disabilities. Types of assistive technology commonly used by pupils with physical disabilities include devices and apps for computer access, augmentative and alternative communication systems, positioning and seating devices, mobility devices, assistive technology for daily living and environmental control, as well as assistive technology for recreation and leisure. These various types of assistive technology can greatly improve the students' functioning and be critical in providing access to school, home, community, and work environments.

Computer Access

Individuals with physical or health disabilities might use computers or tablet devices for communication, academic tasks, leisure, and socialization. Depending on the extent of the physical or health disability, a wide range of adaptations can be made to the computer or tablet. However, in this section, we will focus on computer access.

Some students may use an alternative keyboard to access a computer.

AP Photo/Paul Sakuma

Input Adaptations

Input devices provide information to the computer; standard input devices are the keyboard and mouse. For students with physical or health disabilities who have difficulty using standard devices, a number of alternatives are available. (See the Spotlight on Technology feature for alternatives to keyboards.) Some students may need to activate the accessibility options available in the operating system on computers and tablets, such as the option to increase the time a key must be pressed to reduce input from accidental key hits. Simple appliances may be placed over the standard keyboard to make it accessible. For example, some students drag their hands across the keyboard and need a keyguard (a

plastic cover with holes for each key) to prevent accidentally pushing an unwanted key.

Students may use alternative keyboards that are larger, smaller, or configured differently than the standard keyboard in order to accommodate their physical impairment. Some individuals may use an on-screen keyboard; that is, the keyboard is displayed on the computer screen. A student may control the on-screen keyboard using any number of alternative input devices, such as a trackball, joystick, touchpad, or eye-gaze system to control mouse movements. Others may use a switch with scanning to make selections as the computer highlights letters on a keyboard. Some input devices do not use a keyboard at all. For example, speech recognition software enables the computer to recognize spoken words and translate them into text as well as recognizing numerous commands that replace use of a mouse (for example, saving and opening files).

Once a student has a way of inputting information into the computer, there may be a problem with the speed at which the student can input text. Whether the individual is using a standard keyboard, using an alternative keyboard, using speech recognition software, or typing by raising an eyebrow-controlled switch, input may be slow. There are several techniques that can be used to increase text entry efficiency. One option is using a **word prediction program**. As the student types the first letter, the computer monitor displays a list of words commonly used that start with the letter typed. If the word is displayed, the student can type the corresponding number instead of the entire word. If the word is not displayed, the on-screen list continues to change as more letters are typed. Word prediction does not always increase entry speed because of the additional time needed to access the word list. It can, however, decrease the number of keystrokes, which may decrease fatigue while increasing typing speed for very slow typists and improving grammar and spelling for students who are deficient in these areas (Mezei & Heller, 2012).

word prediction program Software or app that provides a list of potential words that correspond to the letters the user is typing so that the user does not have to type out the entire word.

Spotlight on Technology

Computers provide options for individuals with physical and other low-incidence disabilities that were not previously possible. This is in part because of assistive technology tools that offer a variety of ways to access computers, such as through adaptations or alternatives to keyboards.

Types of Keyboards	Information
Adaptations	
Large keys	• Supports young children, those with cognitive challenges, or those with fine motor challenges
Color coding	• More typical with young children or students with intellectual challenges
Alternative layout	
Alphabetical	• Supports students unfamiliar with QWERTY or who struggle with that format
Dvorak	• Reduces strain or movement as the most-used keys are in the home row
Maltron	• Helps to reduce strain or movement
Alternative devices	
Ergonomic	• Decreases strain and discomfort
One-handed	• Benefits students with amputation or who use one hand
IntelliKeys	• Supports students with fine motor challenges or cognitive challenges • Overlay options provide for flexibility

Types of Keyboards	Information
Onscreen	• Supports students who use a mouse or a head stick or mouth stick with a computer
Wireless	• Supports students who want or need flexibility in keyboard location
Mini or contracted	• Benefits students with limited space or for use on a wheelchair • Benefits students who have fine motor skills but limited range of motion • Creates difficulty for students with fine motor challenges
Mouth and head stick compatible	• Supports students who use a head stick or mouth stick with a computer

Source: E. Bouck, *Assistive Technology* (Thousand Oaks, CA: Sage, 2017); S. Burgstahler, *Working Together: People With Disabilities and Computer Technology*. Available at http://www.washington.edu/doit/working-together-people-disabilities-and-computer-technology; M. Cook and J. Polgar, *Assistive Technologies: Principles and Practice*, 4th ed. (St. Louis, MO: Elsevier, 2015); A. Dell, D. Newton, and J. Petroff, *Assistive Technology in the Classroom* (Boston, MA: Pearson Education, 2012); C. Shih, "Assisting People With Multiple Disabilities to Improve Computer Typing Efficiency Through a Mouse Wheel and On-Screen Keyboard Software," *Research in Developmental Disabilities, 35*(9), 2014, pp. 2129–2136; C. York and K. Fabrikant, "High Technology," in O. Wendt, R. Quist, and L. Lloyd (Eds.), *Assistive Technology* (Bingley, United Kingdom: Emerald, 2011), pp. 221–264.

Output Adaptations

Computers commonly have three types of output: visual (screen), auditory (sound system and speakers or headphones), and the printer. However, students with physical or health disabilities may require adaptations to computer output. Some pupils may need to use text-to-speech software that allows the computer's speech synthesizers to "read aloud" what is on the screen. Others may need a larger monitor or a software program that can magnify what is on the screen. Printers that accept larger paper sizes can be used for students who need enlarged materials. Tactile output is available for students with deaf-blindness. Special printers can emboss printed

materials in Braille while other devices provide refreshable Braille (plastic or metal pins that move up and down to display Braille characters).

Augmentative and Alternative Communication

Some individuals with disabilities will be unable to communicate effectively using verbal speech and require augmentative and alternative communication (AAC). Augmentative refers to the various forms of communication that are used as a supplement or an alternative to oral or written language, such as communication behaviors, gestures, sign language, picture symbols, battery-operated communication devices, and computers with synthetic speech. Often, students will use a combination of ways to communicate. The goal of AAC is not to find a technological solution, but to enable individuals to communicate and engage using a variety of interaction methods (Beukelman & Mirenda, 2013). The educational team will be involved in determining the most appropriate forms of augmentative communication for each individual student.

Positioning and Seating Devices

To provide access to activities, curriculum, and assistive devices, it is imperative that the student with a physical or health disability has proper positioning and seating. Positioning affects the quality and precision of movements and ability to accomplish tasks (Best, Reed, & Bigge, 2010). Optimal positioning and seating are achieved through a wide range of special chairs and inserts that can go into a chair or wheelchair. Proper positioning not only helps the student move as efficiently as possible but can also reduce deformity (for example, contractures) and promote feelings of physical security. Individuals with limited mobility need to change positions frequently throughout the day to avoid any stiffness or pressure sores (skin breakdown from staying in one position for too long).

A pupil may use several different positioning devices throughout the day. Some devices may allow the student to sit a certain way, while other devices help the student lie on his or her side, stomach, or back. A prone stander may be used to support the individual in a standing position. Such positioning devices may enable students to participate in activities they would not be able to do from a wheelchair, such as wash dishes at a sink while positioned in a stander. Standing in a stander increases muscle strength and movement, stimulates bone growth, improves circulation, and increases the movement of food through the gastrointestinal system. A physical therapist will determine the most therapeutic positions for the student and the types of devices needed to help the student achieve these positions. It is imperative that positions are selected that allow for maximum participation in classroom activities rather than creating circumstances of inactivity. For example, a side-lying device can help a student relieve pressure from sitting but may limit the student’s ability to participate in learning opportunities. The side-lyer should be used at a time during the day when the student can engage in naturally occurring classroom activities that do not require hand/arm control, such as listening to the teacher read to the class.

Some students with cerebral palsy require the use of positioning equipment during the school day.

dbimages/Alamy Stock Photo

Mobility Devices

Students with physical or health disabilities may use a wide range of mobility devices to move from one location to another. One of the most common devices is a wheelchair, either manual or power. Manual wheelchairs are pushed by the student (or someone else). Power wheelchairs have a motor that allows the wheelchair user to operate the chair by means of a joystick or other device. Self-operated wheelchairs can give their users tremendous independence.

Depending on the disability, a student may use the wheelchair all the time when moving about, or only when fatigued. Many people are surprised to see a student using a wheelchair one moment then walking around the next. The type of chair and its frequency of use will depend on the student's disability. Individuals with physical disabilities use many other types of mobility devices. Some may use power-operated scooters instead of traditional wheelchairs. A student who can stand and walk with support may use a **walker**. Others who need even less support may use canes or crutches. Whichever mobility device is used, the teacher should be familiar with it and know what type of support the student needs in order to use it without encountering environmental barriers in the school setting.

walker A mobility aid for individuals requiring support when walking.

Environmental Control and Assistive Technology for Daily Living

An **environmental control unit (ECU)** is a device that allows the user to control electric appliances, telephones, door openers, and other items that use electric outlets. In the past, ECU technologies were built specifically for people with disabilities and were very expensive. However, with the increased use of smart-home devices that integrate with computers or cell phones, options are more affordable and more flexible. These systems work by equipping electrical appliances with receivers that are synced with the control device (such as a remote control, cell phone, or tablet). The user then chooses an appliance (such as the TV or a room light) on the control device's menu and selects the desired appliance function (such as turn on or off), which sends a signal to the appliance. ECUs can help students with physical or health disabilities to manipulate their surroundings independently.

> **environmental control unit (ECU)** A device that allows the user to control electric appliances, telephones, and other items that use electric outlets from a distance.

Many other types of assistive technologies are available to help with daily living. Personal care items, such as adapted toothbrushes and hairbrushes, can help the individual with a physical disability who has restricted arm and hand motion or who cannot grasp well. These items may have elongated handles, built-up handles, or Velcro straps. Adapted washcloths that fit over the hand like a mitt and Velcro around the wrist may also be used.

Adaptations for eating and preparing food include special cutting boards with edges and safety knives, modified dishes with one side higher than the other to help with scooping, and adapted cups to help with drinking. Students who are unable to move their arms may use a mechanical feeder that scoops food onto a spoon and brings the spoon up to the mouth with the touch of a switch.

Dressing aids include special sticks with hooks on the end that can be used to pull pants and zippers up or down and devices to help put on socks when the individual cannot reach to the floor. Adapted clothing, such as garments with Velcro along the seams to go over braces, can also make dressing easier. Previously, clothing had to be adapted specifically for a user or purchased from a specialty vendor. Now, however, many companies offer adapted clothing lines so individuals with physical disabilities can purchase fashionable clothing with magnetic closures, enlarged openings, or elastic panels that help increase independence in dressing.

Assistive Technology for Play and Recreation

Numerous assistive technology devices are available for play and recreation. Children who cannot manipulate toys may have battery-operated toys they can activate by a switch. Switches may also be used to turn on and off radios or televisions. Computer games can be accessed using joysticks or other input devices. Other types of recreational games, such as card games and board games, may require the use of a device to hold the cards, a dice holder that can be knocked over to roll the dice, or enlarged pieces.

Individuals with physical or health disabilities also can enjoy playing sports and engaging in physical activities. Some communities have adapted sports teams, such as wheelchair basketball or wheelchair soccer, for individuals with physical disabilities. Many students with disabilities can participate in a wide variety of sports with minor adaptations and assistive technology devices—for example, hitting a ball off a tee or using a ramp that holds a bowling ball and allows a wheelchair user to push the ball down the ramp into the bowling lane. Individuals who like to exercise may be able to use adapted tricycles, bicycles, and mobility devices.

Students with physical or health disabilities enjoy engaging in physical activities.

Thomas Barwick/DigitalVision/Getty Images

Services for Young Children With Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities

Like all school-age children, young children with physical disabilities, health disabilities, and related low-incidence disabilities typically need a collaborative approach utilizing expertise from a variety of disciplines. In addition to family members, special educators, and preschool teachers, professionals such as physical therapists, occupational therapists, speech–language pathologists, adapted physical education teachers, vision specialists, nurses, and physicians may be involved in the education of the young child with physical or health disabilities. This team of individuals will determine the educational needs of the student including environmental adaptations as well as educational goals for increasing motor skills, communication abilities, concept development, pre-academic and academic skills, and functional skills.

Maintaining a safe, healthy environment involves special considerations for the young child. Young children may not understand why they have certain restrictions (such as restricted sweets if they have diabetes) or the exact nature of their disability (what is happening when they have a seizure). The teacher needs to understand the child's restrictions and help the young child comply with them. Also, some young children may have the misconception that they have a particular condition because they did something bad. The teacher should be alert for such misconceptions and notify the parents.

Children with physical disabilities, multiple disabilities, and deaf-blindness often show delays or little progress in motor development—rolling over, sitting, crawling, walking, reaching for items, grasping items—and may receive the services of physical therapists and occupational therapists. These professionals can provide positioning suggestions and equipment, mobility devices, adaptive toys, devices for daily living (such as adapted feeding utensils and toothbrushes), and orthotics (such as leg braces). They may suggest changes in the environment to eliminate architectural barriers

as they seek to integrate therapy intervention strategies into the child's daily routines (Gargiulo & Kilgo, 2020). Teachers often will integrate some of the therapy goals and objectives into the preschool classroom. For example, improvement of specific fine motor skills can be addressed during play with Play-Doh or therapy putty.

When young children with physical disabilities have communication problems, one of the major emphases of early intervention is to promote communication. It is often difficult to predict how clearly the child will develop speech or if the child will require an augmentative communication system. To encourage communication and decrease frustration, a speech–language pathologist may work on increasing verbal speech and using an augmentative communication device, giving the child a means of communicating while also working on speech production.

Some parents may not want their child to use augmentative communication for fear that it will hinder speech production and reduce their child's motivation to speak. Augmentative communication is never meant to replace speech, but meant to supplement it. There are no data to support the idea that augmentative communication interferes with speech production; in fact, research studies suggest just the opposite (Smith, 2015; Tobii Dynavox, 2018). Because communication opens the door to so many social and learning opportunities, educational teams should not wait to introduce augmentative communication devices or strategies for young children with complex communication needs. As with physical and occupational therapy goals, speech–language pathologists and teachers can collaborate to infuse numerous speech and language activities into the preschool classroom. Every activity, from circle time to snack time, can be used as an opportunity to work on developing communication abilities.

Because many young children with physical disabilities, health disabilities, and related low-incidence disabilities lack common experiences or the ability to manipulate common items, teachers may need to work on concept development. Although concept development (for example, *round versus square, colors*) is typically part of preschool programs, even more basic concepts may need to be addressed or introduced in different ways with the

child with a severe physical disability. Some young children with severe physical disabilities may not have had the opportunity to play in dirt or pull pots and pans out of kitchen cabinets to explore the noises they make when used as makeshift drums. Basic concepts such as “a sponge can be squeezed” or “dirt and water make mud” may need to be taught explicitly to children who have not had these background experiences. Failure to address these basic concepts can interfere with comprehension of material that will be included later in the school curriculum.

Children with physical disabilities, health disabilities, and related low-incidence disabilities will be participating in all or part of the preschool curriculum, and it is important that appropriate adaptations be in place. For coloring and drawing, for example, the child may need an adapted crayon or may begin using a simple drawing program on a computer. The special education teacher, with input from other members of the educational team, will assist in determining the appropriate adaptations and assistive technology.

Transition Into Adulthood

As students with physical disabilities, health disabilities, and related low-incidence disabilities transition into adulthood, they often face major decisions regarding postsecondary education, employment, and independent living. Hopefully, these issues have been discussed for many years with preparations made well in advance to ensure a smooth transition from high school to the next environment. Through the help of transition planning, legislation, technological advances, and options for support, more opportunities now exist for individuals with physical and health disabilities than ever before.

With the passage of PL 101–476, each adolescent's IEP is required to include a **transition plan**. A transition plan identifies goals specific to the student aimed at meeting the student's needs after high school. Identification of transition needs and services is part of the planning process. Successful transition plans are often based on major life areas that will be important for adulthood. These may include daily living skills, personal/social skills, and occupational guidance and preparation (Clark, Bigge, & Best, 2010).

> **transition plan** An individualized plan with identified goals and objectives used to prepare the student in making the transition from high school to work (or college); also known as an *individualized transition plan* (ITP).

Career preparation should occur throughout a student's school years. Some students will be preparing to go on to a university, community college, or vocational school before seeking employment. Others will seek employment after finishing high school. Individuals with disabilities may use one of several vocational education service delivery programs, including secondary vocational education, postsecondary vocational and technical education, apprenticeship programs, and vocational rehabilitation programs (Sitlington, Neubert, & Clark, 2010).

Students who choose to go to college may find it very stressful to leave familiar surroundings and supports. Colleges and universities, however, typically offer services for individuals with disabilities to assist them with accommodations and accessibility issues. Other adaptations, such as extended time for taking tests or assignment adjustments, are available through college and university offices for disability support. While they are in high school, it is important that students learn to be self-advocates and how to find and use appropriate resources. In postsecondary school settings, these young adults no longer have educational teams making decisions on their behalf; instead, they will need to become advocates for themselves to ensure that they acquire the accommodations necessary to be successful.

Technology has made more jobs than ever before accessible for individuals with physical and health disabilities. With more technology-based jobs available, individuals with severe physical and health disabilities often can work in these fields by adapting the computer to meet their specific needs. Adaptations may be quite simple, such as having the keyboard placed in a different position for easy access or using a software program that provides an on-the-screen keyboard accessed via a joystick. Many other employment opportunities are possible with minor adaptations. Educational teams need to plan ahead to ensure that the student's potential job opportunities are explored and there is a protocol in place for determining what is necessary to make a job possible while following through with appropriate adaptations to ensure success.

Vocational education is important for some adolescents with physical or health disabilities.

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Some individuals with physical disabilities, health disabilities, and related low-incidence disabilities who are unable to work in competitive employment may benefit from **supported competitive employment** or other employment models. In supported employment, the person with a disability works in a regular work setting as a typical employee; however, training and continued support are necessary. A **job coach** (or job specialist) provides on-the-job assistance to the person with a disability. Often individuals who will benefit from this model have also received community-based vocational instruction during high school with a job coach. This previous training can help a student learn important job skills and acquaints the student with a supported employment model.

supported competitive employment At a work site for typical workers, individuals with disabilities are employed and work alongside their typical peers but receive ongoing assistance from a job coach.

job coach An individual who supervises a person with a disability for all or part of the day to provide training, assistance, or support to maintain a job.

It is difficult to predict the employment outlook for individuals with physical disabilities, health disabilities, or related low-incidence disabilities. When the physical or health disability is mild, it may not interfere with employment opportunities. However, some students with mild physical or health disabilities may exhibit inappropriate social behaviors or poor work habits that make finding and keeping a job difficult without further training. Pupils who have severe physical disabilities will be unable to do many physically demanding jobs; yet, many of these individuals can successfully perform intellectually challenging jobs with the use of assistive technology. Students with severe physical disabilities still face major barriers to employment when assistance is needed with personal issues (for example, bathroom assistance) or when there are mobility or communication difficulties. These problems, among others, contribute to a significant underemployment rate for individuals with severe physical disabilities (Clark et al., 2010; Wehman, 2013) as well as those with deaf-blindness and multiple disabilities.

Adults With Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities

Many adults with physical disabilities, health disabilities, and related low-incidence disabilities will make a positive transition into adulthood and will be integrated into work and community environments. Their success will depend partly on community acceptance and partly on the provision of necessary adaptations and support. With these kinds of disabilities, having appropriate medical and technological support will also be critical in ensuring a high quality of life.

The impact of a physical or health disability in the adult years will vary greatly, depending on the specific impairment, its prognosis, and possible complications. Many individuals who have mild physical or health disabilities may experience only minor problems resulting from their disabilities. At the other extreme, individuals who have a life-limiting condition (Duchenne muscular dystrophy, cystic fibrosis) may die in their early adult years, or not even survive to adulthood. Many other adults, such as those with cerebral palsy, may experience complications and multiple health issues, such as scoliosis (curvatures of the spine) and contractures, further limiting movement and mobility and resulting in pain. Multiple surgeries may be needed to address these types of musculoskeletal problems.

Some problems that occur in adults with physical disabilities can be prevented. A shocking lack of preventive medical care (general medical checkups, dental care) has been found among adults with cerebral palsy. As a result, adults with cerebral palsy are more susceptible to medical problems that could have been prevented or treated in their early stages. Providing preventive and appropriate medical care is key to adult health.

Family Issues

Families with children who have physical disabilities, health disabilities, or related low-incidence disabilities may experience tremendous stress. Sources of stress include juggling the demands of the disability and ongoing medical treatment, dealing with uncertainties about the child's future health and independence, financial strains, lack of respite care, routine changes and disruptions, and overall exhaustion. For example, by the time Natalie, the young woman from our chapter opener, was in her 20s, she had been to more than seventy-three doctors, therapists, and rehabilitation engineers, involving countless appointments, medications, and treatments, including thirteen surgeries. This is not unusual for a family that has a child with a severe physical disability.

Stress also can result from the additional care and daily activities that may need to be performed for the child. Absences from school because of illness, surgeries, and medical treatments may add stress when one of the parents needs to stay home (or in the hospital) with the child. Daily, the child may need help with such basic tasks as eating, toileting, and obtaining desired items. Some children will require regular medical treatments at home (such as respiratory physical therapy to decrease respiratory secretions) or at a clinic (such as dialysis). Some students may have degenerative and life-limiting conditions that can increase stress.

Despite the added stress, most families are able to manage the demands of having a child with a physical or health disability with the child being a valued, loved, and contributing member of the family. Many factors contribute to the family's coping ability, including support from concerned others, positive family appraisal, spiritual support, advocacy, positive social interactions, education and information, parental involvement that enhances a sense of control, and consistency in the medical care of the child (Turnbull, Turnbull, Erwin, Soodak, & Shogren, 2015). Teachers can help families by being supportive, helping parents be an active part of the IEP team, and not being judgmental toward the parents.

Issues of Diversity

Physical disabilities, health disabilities, and related low-incidence disabilities occur in students from all backgrounds, cultures, and economic levels. Unlike other disabilities, such as intellectual and learning disabilities, physical disabilities raise no questions regarding misclassification and cultural bias. However, misunderstanding can result from cultural differences in how the disability is viewed and from miscommunication between parents and school.

Different families cope with illness and disability in diverse ways, and some are influenced by their particular culture. For example, some members from Hmong culture view seizures as a sign of distinction that could qualify the person with epilepsy for the divine office of shaman (Fadiman, 1997). More often, the cultural influences are subtler.

Misunderstandings may occur between the school and family as a result of cultural differences. For example, some cultures do not place significant emphasis on independence for persons with disabilities. This may cause conflict between the student's family and the educational team from a cultural background where independence is valued. Understanding and respecting cultural differences is important to providing positive educational experiences for the student. Building rapport and trust between school personnel and families is essential. Often, collaboration and open communication is key to bridging differences and finding the right balance that will meet the student's needs (Gargiulo & Kilgo, 2020; Turnbull et al., 2015).

Trends, Issues, and Controversies

Three major issues in the field of physical disabilities, health disabilities, and related low-incidence disabilities are (1) assessing capabilities and needs of students with very severe physical disabilities; (2) provision of specialized technology, adaptations, and instructional strategies; and (3) selection of appropriate curriculum.

The first issue is appropriate assessment of students with severe physical disabilities in terms of cognitive functioning and evaluation of what the student has learned. When a young child cannot reliably move or speak, and is not yet using augmentative communication effectively, psychological testing can be of limited value or accuracy. We have encountered numerous instances in which young children with severe physical impairments and complex communication needs had been labeled as having severe intellectual disability only later to be determined as having intelligence in the range from mild intellectual disability to giftedness. In our chapter opener, Natalie's category changed multiple times, although her intellectual capabilities remained the same. Assessment difficulties also are present for students with multiple disabilities and deaf-blindness.

Because of this difficulty, two major areas need to be addressed: finding a reliable way to respond and providing an appropriate curriculum. When students are learning augmentative communication, it is essential to find some **reliable means of response**—that is, a consistent, reliable way for the pupil to answer questions. This could be looking at the answer (eye gazing), touching the answer, hitting a switch to indicate the answer, or having the teacher move a finger across answers until the student makes a noise indicating the desired selection. Typically, this means that questions must be presented in a multiple-choice format, at least until students have literacy skills and can type out their own responses. Having a reliable means of response makes it possible to assess what the individual knows. Given the lack of experiences and inability to communicate thoughts and questions, intelligence testing may still not be accurate, even when the pupil has a

reliable way to respond to the questions. However, it does give the teacher an accurate way of determining if the student has learned the material.

reliable means of response A consistent, reliable way of answering questions.

A second issue involves the provision of specialized technology, adaptations, and instructional strategies. Barriers to obtaining and using the necessary technology include funding issues, appropriate assessment, selection of devices, training to use the devices, and ongoing technical support.

The third area to consider is curriculum. Some learners with physical or health disabilities will be on an academic curriculum; others will be on a adapted curriculum. However, when the individual has severe physical impairments and complex communication needs, it may not be obvious where the student is functioning. Students with severe physical and multiple disabilities should be taught and assessed periodically on more advanced skills to determine whether the student can learn them. For example, if the pupil is only introduced to pictures for communication, how do we know that the student is not capable of learning words? This concern is best summed up by Natalie's mom (B. Tumlin, personal communication, July 2001):

> A nonverbal child cannot provide her own opportunities to prove more than what is expected. When placement is based strictly on test scores and/or assumptions, quite often our kids end up living *down* to expectations, are isolated from normal interactions and experiences, and learn inappropriate behaviors to be what is "normal."

Placing students in inappropriate curriculums or teaching them less than they are capable of learning may be due to **spread** (Smart, 2016)—the overgeneralization of a disability into unrelated areas, often resulting in stereotyping. For example, people may assume that someone who uses a

wheelchair has a cognitive impairment, or may react to a person who is blind by talking more loudly. It is important to interact with individuals with disabilities based on what they demonstrate, rather than on unfounded assumptions. The initial assumption should be that the person has receptive language and cognition skills that are commensurate with same-age peers. In order for students with physical, health, and related impairments to maximize their potential, they must be seen as competent, valuable, contributing members of a classroom, school, or community, and they must be provided with adaptations and strategies, in addition to high expectations, to help them succeed.

spread The practice of spreading inferences to other unrelated aspects of a disability, often resulting in stereotyping.

Chapter in Review

Defining Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities (Learning Objectives 14.1, 14.2, and 14.3)

- Students who have physical and health disabilities are one of the most diverse categories of students receiving special education services.
- Depending on the disability and its impact on educational performance, students with physical or health disabilities may receive special education services under one of four IDEA categories: orthopedic impairment, multiple disabilities, traumatic brain injury, and other health impairment.
- Individuals with concomitant loss of both vision and hearing are identified as deaf-blind.

Historical Perspectives (Learning Objective 14.4)

- In ancient times, children with physical or health impairments were largely shunned by society and left to die.
- Institutions initially provided training and treatment for individuals with physical disabilities but slowly evolved to only providing custodial care.

Etiology of Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities (Learning Objective 14.5)

- Physical disabilities, health disabilities, and related low-incidence disabilities have multiple causes.
- Some of the more common etiologies can be grouped under chromosomal and genetic causes, teratogens, prematurity, and complications of pregnancy, in addition to acquired causes.
- Children with physical or health disabilities and low-incidence disabilities comprise about 18 percent of the population of students receiving a special education.

Characteristics of Individuals With Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities (Learning Objective 14.6)

- The characteristics of individuals with physical disabilities, health disabilities, and related low-incidence disabilities depend on the specific condition and its severity.
- Individuals with such neuromotor impairments as cerebral palsy and spina bifida have impaired motor movements and often have additional disabilities associated with the specific condition.
- Children with degenerative or life-limiting conditions, such as Duchenne muscular dystrophy, have progressive loss of control in moving their bodies and often have shortened lifespans.
- Students with orthopedic and musculoskeletal disorders, such as juvenile idiopathic arthritis and limb deficiencies, can have severe physical limitations.
- Individuals with multiple disabilities have a combination of disabilities, often including a physical or health impairment.
- Pupils with traumatic brain injury may have deficits across cognitive, motor, physical, health, sensory, language, social, and behavioral domains.
- Major health impairments (such as seizure disorders) can affect an individual's endurance and attention.
- Students with deaf-blindness are an especially heterogeneous group of learners varying tremendously in their needs, abilities, and educational requirements.

Educational Considerations (Learning Objectives 14.7 and 14.8)

- Educational placement of students with physical disabilities, health disabilities, and related low-incidence disabilities varies greatly.
- Physical and health disabilities fluctuate in their impact on school performance according to the type of disability involved, the functional effects of the disability, and the psychosocial and environmental factors surrounding the disability.
- Meeting the educational needs of students with physical disabilities, health disabilities, and related low-incidence disabilities involves monitoring, adaptations, and specialized instructional strategies.

Technology and Individuals With Physical Disabilities, Health Disabilities, and Related Low-Incidence Disabilities (Learning Objective 14.9)

- The role of medical and assistive technology is prominent for students with physical and health disabilities. Advances in medical technology have helped these individuals lead healthier lives.
- Types of assistive technology commonly used by individuals with physical disabilities, health disabilities, and related low-incidence disabilities include devices for computer access, augmentative and alternative communication devices, positioning and seating devices, mobility devices, environmental control units, daily living devices, and play and recreation devices.

Educational Services Across the Life Span (Learning Objective 14.10)

- Early intervention involving professionals and parents is vital for children with physical disabilities, health impairments, and other low-incidence disabilities.
- Transition planning for adolescents with health, physical, and low-incidence disabilities is crucial as these young adults make decisions about career choices, independent living, and postsecondary education.

Study Questions

1. Which IDEA categories include students with physical or health disabilities, and how are they defined?
2. What are the major causes of physical disabilities, health disabilities, and deaf-blindness?
3. Explain the following conditions: cerebral palsy, spina bifida, traumatic brain injury, Duchenne muscular dystrophy, limb deficiency, seizure disorder, and deaf-blindness.
4. Explain the steps you would take if a tonic-clonic seizure occurred in your classroom.
5. How does a physical disability, health impairment, or low-incidence disability affect school performance?
6. What does it mean to maintain a safe, healthy environment?
7. What types of adaptations may need to be used in the classroom? Include five major areas in your discussion.
8. Identify five of the principal communication systems used with students who have deaf-blindness.
9. Describe how communication breakdowns can occur when talking with an individual using an augmentative communication device. Describe some techniques for preventing such breakdowns from occurring.
10. What are specialized instructional strategies and specialized expanded curriculum areas? Provide examples.
11. What are some stresses that may occur in families that have a child with a physical or health impairment? How are these stresses different from those experienced by families with other types of disabilities?
12. What are the major types of assistive technology available to students with physical disabilities, health disabilities, or low-incidence disabilities?
13. What is augmentative and alternative communication? Does its use interfere with speech production? When should it be introduced?
14. What is “spread,” and how may it affect a person with a physical or health disability?

Key Terms

low-incidence disability, 449
augmentative and alternative communication (AAC), 449
assistive technology devices, 449
orthopedic impairment, 449
multiple disabilities, 449
traumatic brain injury, 450
other health impairment, 450
deaf-blindness, 450
CHARGE association, 453
Usher syndrome, 454
teratogens, 454
neuromotor impairment, 457
cerebral palsy, 457
spastic cerebral palsy, 457
athetoid cerebral palsy, 457
ataxic cerebral palsy (ataxia), 457
mixed cerebral palsy, 457
hemiplegia, 457
diplegia, 457
paraplegia, 457
quadriplegia, 457
contractures, 457
orthotics, 458
spina bifida, 458
Duchenne muscular dystrophy, 460
juvenile idiopathic arthritis (JIA), 461
limb deficiency, 461
seizure, 465
epilepsy, 465
focal onset impaired awareness seizure, 465
absence seizure, 465
tonic-clonic seizure, 467

asthma, 468
standard precautions, 468
acquired immune deficiency syndrome (AIDS), 468
adaptations, 476
specialized instructional strategies, 477
communication breakdowns, 478
intervener, 480
word prediction program, 482
walker, 485
environmental control unit (ECU), 485
transition plan, 487
supported competitive employment, 488
job coach, 488
reliable means of response, 490
spread, 491

Learning Activities

1. Learn about your own state's disability definitions and special education certification categories. Does your state use the orthopedic impairment, traumatic brain injury, multiple disabilities, other health impairment, and deaf-blindness categories? How are they defined? What types of special education certification does your state provide, and is there specialized training in physical and health disabilities?
2. Visit a school and observe students with low-incidence disabilities. What types of adaptations and assistive technologies are being used? What are the roles of the occupational therapist, physical therapist, speech–language pathologist, nurse, special educator, general education teacher, student, and parents in determining adaptations and selection of assistive technology?
3. Interview a high school student (or parent of a child) with a physical or health disability. Ask the student about his or her disability and its treatment. Ask the student what it is like to have the particular disability. Does he or she feel that it has interfered with school, activities, or making friends? What does the student think that teachers need to know about the disability?
4. Contact local chapters of organizations involved with physical and health disabilities, such as the Epilepsy Foundation of America or United Cerebral Palsy. Find out what services they provide. Obtain samples of literature they have for the public. Attend a support meeting to gain insight into some of the issues in their area of focus.
5. Visit websites specializing in assistive technology. What types of assistive technology devices are available? Select five different assistive technology devices and describe their use, whom they are for, their price, and your overall impression

of the devices. Alternatively, contact your state's Assistive Technology Act Program (www.ataporg.org). Find out what types of services are available for students with physical and health disabilities or related low-incidence disabilities.

Organizations Concerned With Physical Disabilities, Health Disabilities, or Related Low-Incidence Disabilities

Brain Injury Association of America

www.biausa.org

Centers for Disease Control and Prevention

www.cdc.gov

Division for Physical, Health and Multiple Disabilities, Council for Exceptional Children

http://community.cec.sped.org/dphmd/home

Epilepsy Foundation of America

www.epilepsy.com

Muscular Dystrophy Association

www.mda.org

National Organization for Rare Disorders

www.rarediseases.org

Spina Bifida Association

http://spinabifidaassociation.org

United Cerebral Palsy

www.ucp.org

Reflecting on Standards

The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Learning Environments (CEC Initial Preparation Standard 2.1)

Reflect on someone you know who has a physical disability or a related low-incidence disability. How is this person misunderstood or treated by the general population? If you were to have a student in your class with a physical or related low-incidence disability, how might you need to educate your general education students so that your classroom is a safe, equitable, positive, and supportive learning environment?

Focus on Instructional Planning and Strategies (CEC Initial Preparation Standard 5.4)

Reflect on what you have learned in this chapter about the educational needs of students with physical disabilities and related low-incidence disabilities. If you were to have a student with cerebral palsy in your class, what strategies might you need to implement to make sure communication with your student is clear? What assistive technologies might you need to implement?

Student Study Site

Sharpen your skills with SAGE edge at **edge.sagepub.com/gargiulo7e**. SAGE edge for students provides a personalized approach to help you accomplish your coursework goals in an easy-to-use learning environment.

15 Individuals Who Are Gifted and Talented

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Learning Objectives

After reading Chapter 15, you should be able to:

15.1 **Describe** various interpretations of giftedness.
15.2 **Explain** the strategies typically used to assess an individual's gifts and talents.
15.3 **Summarize** the history of educational services for students with gifts and talents.
15.4 **Discuss** the etiology of giftedness and talent.
15.5 **List** the characteristics of persons who are gifted and talented according to the five dimensions of giftedness.
15.6 **Summarize** the various instructional strategies used by educators to teach pupils who are gifted and talented.
15.7 **Identify** the service delivery options available to students with gifts and talents.
15.8 **Outline** the various ways technology can benefit students with gifts and talents.
15.9 **Describe** educational opportunities for young children and adolescents who are gifted and talented.
15.10 **Discuss** the challenges confronting educators when serving twice-exceptional students, girls who are gifted and talented, and individuals with gifts and talents from culturally diverse backgrounds.

It's All Up to the Parent

My mom still laughs about it—knowingly laughs at my naïveté, joyfully laughs with his possibilities. At 18 months, Jake (my firstborn and only born at the time) was splashing in the tub playing "name that alphabet letter." Randomly I held up sponge letters as he giggled and shouted their names at me. But he misidentified the *I* as an *L*. When I told Mom about it, she was thrilled! I, on the other hand, explained, "But he missed one." There was silence, then laughter on the phone.

I've learned so much in the years since then. For example, I've learned that most 18-month-olds can't speak in full sentences, much less know all the letters by name. And I've learned that most 4-year-olds can't read. In spite of all the child development books on the market and in my personal library, I've learned that gifted children are virtually ignored. Their educational, social, and emotional needs are very different from other children's, so unless the book solely deals with the gifted, it's not very beneficial. And I guess the most important thing I've learned is that, right or wrong, it's usually all up to the parent.

Academically, I have found that very few teachers understand or even recognize the gifted child. This became painfully clear to me as day after day I had to drag my first grader, my Jake, out from behind the couch, forcing him to go to school. I have found that I am the one responsible for making sure he is challenged in the classroom and at home. I vividly remember the meeting I had with his teachers, then his principal. I had researched,

read numerous books, prepared sample lessons, and organized the cognitive test results from an independent psychologist. I walked a fine line between the concerned parent who wants the best for her child and so offers resources and suggestions and the pushy, domineering mother who knows best. Luckily for Jake, it worked beautifully. I met with open-minded, openhearted professionals. He now has two very caring, understanding teachers from different grades individualizing instruction and challenging him. The couch is no longer an issue—this year.

The academic struggles Jake has battled in no way compare to the emotional issues we deal with almost daily. I see his confusion as people constantly expect more from him than other 7-year-olds because he is so bright. I see his frustration as he tries to explain some complicated make-believe game to his age peers. I see his boredom as he brings home worksheets that force him to "practice" a math skill twenty times that he knew after three. I see his hurt as he worries about the sick and misfortunate. And I see his anger over things that aren't fair.

Oh, how I wish people understood! If administrators only knew that the best way to remove the learning ceiling is to cluster group by readiness. If teachers only realized that gifted kids have very different academic and social needs. If they only knew how a little differentiation literally changes the life of a gifted child. (I well remember Jake's response to just the possibility of doing an independent project. He paced the floor rushing out his words about king cobras and books and where's the poster board! And I well remember the void of all expression when the teacher "didn't get around to it.") And if gifted kids only knew that there would be challenge, there would be intellectual peers who could share ideas, and there would be teachers and principals who just plain understood.

But until that happens, it seems to be up to the parent. I am the one who discovers the opportunities—The Center for Gifted Studies, the Super Saturdays enrichment classes, the summer reading programs, the independent learning. I am the advocate passing on information to the school, gifting the teacher with the latest curriculum book, serving on the School Council. And I see changes. I see how much information opens eyes. And I've seen how opened eyes facilitate change. And I am beginning to get the feeling I'm not alone.

—*Tracy Inman*

Chapter contribution written by Julia Link Roberts, Western Kentucky University.

Stereotypes of individuals who are gifted and talented are numerous, and many people believe that the stereotypes represent the truth about children who are gifted. Some people think that a person is not gifted unless he or she is radically accelerated or that being gifted means having few or diminished social skills. Others gather their impressions about giftedness from one or a few individuals they have known or heard about, and then they generalize about people who are gifted based on this limited

information. Many of the resulting stereotypes are just that—stereotypes; they are often inaccurate or misleading when applied to students who are gifted or talented and gifted individuals in general.

Some people say that every child is gifted; if they mean all children are special, then, of course, they are right. However, they are using a different meaning of *gifted* from the one used in this chapter to describe a category of children who are exceptional. Other people use the term *gifted* only in connection with the arts or athletics; we often read about the gifted tennis player or the gifted violinist. As the term is used in education, however, children who are **gifted and talented** have abilities and talents that can be demonstrated or have the potential for being developed at exceptional levels. They are significantly different from age-mates in their area(s) of giftedness or talent. These children have needs that differ in some degree from those of other children.

> **gifted and talented** Persons who possess abilities and talents that can be demonstrated, or have the potential for being developed, at exceptionally high levels.

In this chapter, we examine the concept of giftedness, the characteristics of children and young people who are gifted and talented, and the special needs created by these characteristics. We will trace the historical development of the concept of giftedness; describe trends in support, and lack of support, for addressing the needs of gifted individuals; and elaborate on strategies that can be used in schools and in other settings to develop students' maximum potential. Finally, we will explore some current issues and challenges in identifying and providing services for children with gifts and talents.

See the accompanying Insights feature for frequently asked questions about students who are gifted and their education.

Defining Giftedness: Refining the Meaning

During the early twentieth century, the public equated giftedness with high intelligence. Terman (1925), for instance, considered individuals gifted if they had an IQ greater than 140—the top 1 percent of the population. The connection between high intelligence and giftedness remains with us today. However, this restrictive view of giftedness has been expanded to include other dimensions and categories.

Insights
Common Questions About Students Who Are Gifted and Talented and Their Education

Q. Which is more important for the development of intelligence—heredity or environment?
A. No doubt, heredity and the environment work together to develop intelligence. What is known, however, is that a stimulating environment is key to the development of potential, and stimulation during the early years is very important.
Q. What is the biggest problem with identifying a student as gifted?
A. There are two critical problems in identifying a student as gifted. The first is that it is very difficult to see advanced ability unless students have opportunities to demonstrate their skills and knowledge. Some students won't evidence their advanced abilities unless differentiated learning opportunities are provided. The second problem is that teachers tend not to nominate individuals who are gifted underachievers, twice-exceptional learners, or gifted pupils with behavioral issues unless they have had professional development about the characteristics of students who are gifted.
Q. Will grouping together students who are gifted result in elitism?
A. Grouping students for instructional purposes will allow students with gifts and talents to make continuous progress. What grouping allows advanced students to do is to learn at the level at which they are able and ready to learn. It should make them feel not elite but rather that their needs, emanating from their strengths, are being addressed.
Q. Which is better for a learner who is gifted: acceleration or enrichment?
A. Acceleration offers opportunities for students to learn what they are ready to learn whether this is accomplished by starting a learning experience earlier than age-mates or by adjusting the curriculum to make it more complex in order to challenge the students. Enrichment may be built into the curriculum or engaged in outside the school during evenings, Saturdays, or summers. Which accommodation

is preferable will depend on the individual. One option may be appropriate now and another later on.

Q. What is the difference between differentiation and individualization?

A. Defensible differentiation matches learning experiences to the student's level of readiness and interest in the topic or concept being studied. Learning experiences are planned based on information acquired through preassessing students. Individuals or clusters of students will engage in differentiated learning opportunities that present challenges. On the other hand, individualization is planning instruction for each student, allowing pupils to make continuous progress.

Giftedness manifests itself in many different ways.

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The first national report on gifted education, known as the Marland Report, offered the following definition, specifying six categories of giftedness (Marland, 1972, p. 10):

> Gifted and talented children are those identified by professionally qualified persons who by virtue of outstanding abilities are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society.
>
> Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas: (1) general intellectual ability, (2) specific

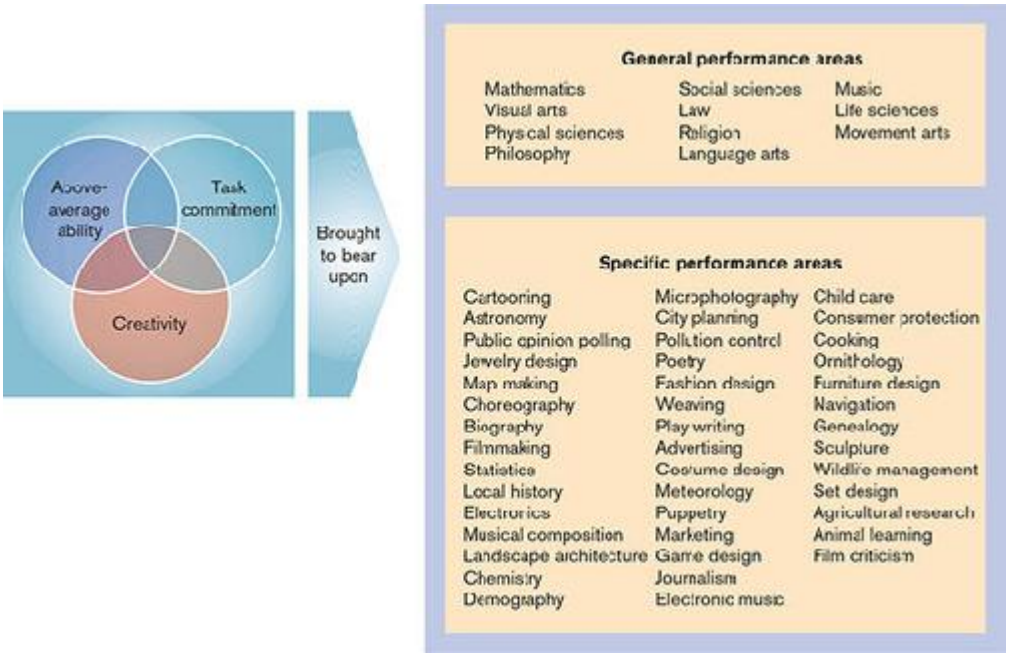
> academic aptitude, (3) creative or productive thinking, (4) leadership ability, (5) visual and performing arts, and (6) psychomotor ability.

Several states have essentially adopted this definition, with the exception of psychomotor ability. Although individuals certainly demonstrate giftedness in psychomotor ability, the category has been removed because the development of athletic ability is supported and generously funded in other ways.

The second national report on gifted education, *National Excellence: A Case for Developing America's Talent* (Ross, 1993), uses the term *talent* rather than *gifted:* "Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment" (p. 3). Like the Marland Report, it notes that "outstanding talent" can be evidenced in general intellectual ability, specific academic ability, creative thinking, leadership ability, and/or the visual and performing arts. At the same time, it stresses that "outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor" (p. 3). The recommendations contained in *National Excellence* provide a blueprint for states to use in expanding their definitions of children who are gifted and talented.

Renzulli's (1978, 1998) "Three-Ring" model of giftedness, represented visually as three intersecting circles (see Figure 15.1), is perhaps the best known model in the field (Plucker & Callahan, 2014). Giftedness comprises three traits: creativity, above-average intellectual abilities, and task commitment. The focus of this model is on endeavors and activities that demonstrate giftedness; some examples of these behavioral manifestations are listed in Table 15.1. "Perhaps the major contribution of the three-ring conception of giftedness is that it was among the first efforts to make creative productivity a goal of gifted education" (Plucker & Callahan, 2014, p. 391).

Figure 15.1 Renzulli's "Three-Ring" Definition of Giftedness



Source: Adapted from J. Renzulli, "What Makes Giftedness? Reexamining a Definition," *Phi Delta Kappan*, *60*(3), 1978, p. 184.

Table 15.1 Illustrations of Gifted Behavior as Portrayed by Renzulli's "Three-Ring" Model

Table 15.1 Illustrations of Gifted Behavior as Portrayed by Renzulli's "Three-Ring" Model

Gifted Behavior	Examples
Above-Average Ability (general)	• High levels of abstract thought • Adaptation to novel situations • Rapid and accurate retrieval of information
Above-Average Ability (specific)	• Applications of general abilities to specific area of knowledge • Capacity to sort out relevant from irrelevant information • Capacity to acquire

Gifted Behavior	Examples
	and use advanced knowledge and strategies while pursuing a problem
Task Commitment	• Capacity for high levels of interest, enthusiasm • Hard work and determination in a particular area • Self-confidence and drive to achieve • Ability to identify significant problems within an area of study • Setting high standards for one's work
Creativity	• Fluent, flexible, and original thought • Open to new experiences and ideas • Curious • Willingness to take risks • Sensitive to aesthetic characteristics

Source: J. Renzulli and S. Reis, *The Schoolwide Enrichment Model*, 2nd ed. (Mansfield Center, CT: Creative Learning Press, 1997), p. 9.

Piirto (2007) provides a definition of giftedness that applies to school settings. In this context, the gifted population includes

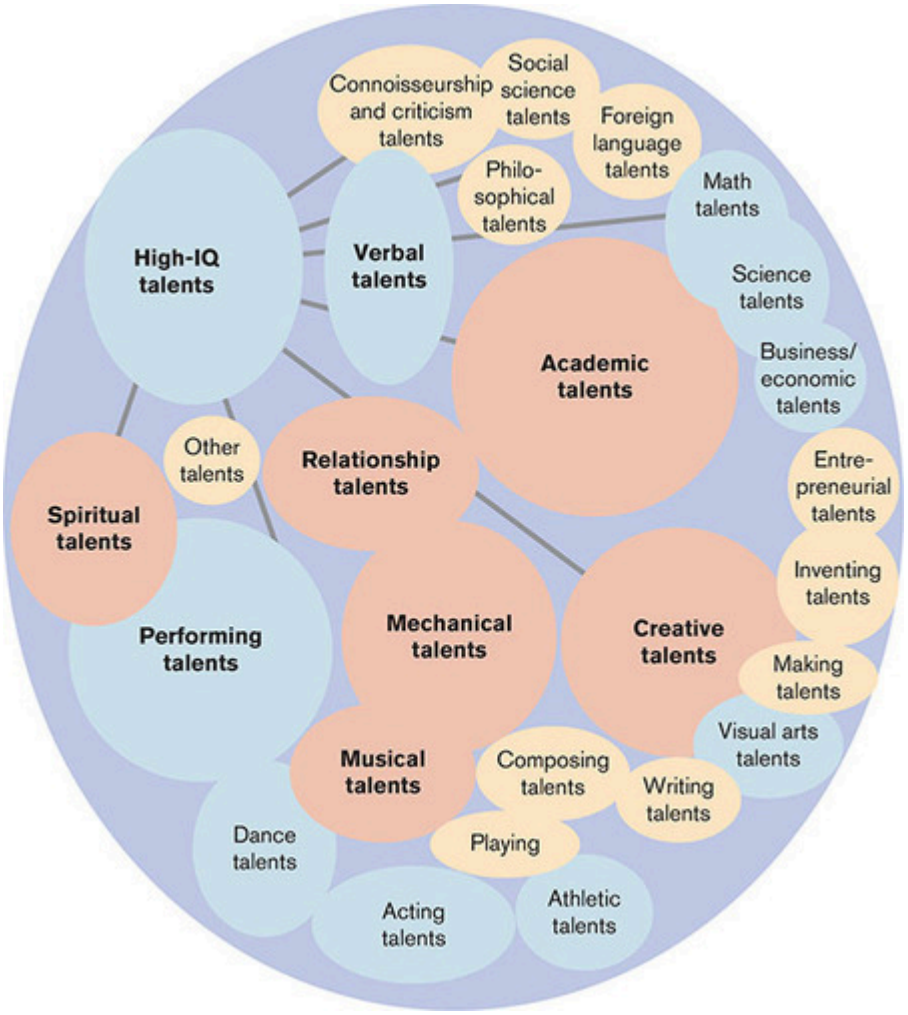
> those individuals who, by way of learning characteristics such as superior memory, observational powers, curiosity, creativity, and the ability to learn school-related subject matters rapidly and accurately with a minimum of drill and repetition, have a right to an education that is differentiated according to these characteristics because all children have a right to be educated according to their needs. (p. 37)

These children can be observed early, and their education should be planned to address their needs from preschool through college. Piirto also presents a model of talent development (see Figure 15.2) “in circular (not linear) form to indicate that the giftedness construct is not lines and angles, but a sphere, a circle, which enfolds all kinds of talent” (p. 37).

Talent Development Definition

As you can see, definitions of *gifted* have evolved from an exclusive focus on high intelligence to a range of categories and indicators of talent. Identifying giftedness and talent in specific categories highlights the need for services to be customized to the individual's area(s) of identified strength(s). Identifying areas of giftedness is essential in order to match services and learning opportunities to need, and with gifted children, needs are created by strengths rather than deficits. "No talent is developed in the absence of appropriate opportunities for education, training, or coaching" (Olszewski-Kubilius, Subotnik, & Worrell, 2018, p. 12). Fairness is not offering the same educational opportunities to all children of the same age; rather, it is providing learning opportunities matched with needs, interests, and abilities or levels of readiness.

Figure 15.2 Piirto's Giftedness Construct



Source: J. Piirto, *Talented Children and Adults: Their Development and Education*, 3rd ed. (Waco, TX: Prufrock Press, 2007), p. 46. Reprinted with permission.

Some examples may help. Jimmy was outstanding in many areas. He was so good at science that teachers encouraged him to become a physician or a research scientist; he was such an outstanding writer that his English teachers thought he was bound to be a journalist; he was also a talented musician and could have pursued a career in music. Jimmy was intellectually gifted, gifted in specific academic areas, and talented in the performing arts. Chin Lan was very talented in math and science and was identified as gifted in those specific academic areas; in other academic areas, she was ready for the academic challenges provided for others her

age. Luis, who performed at grade level in academic subjects, was charismatic and had the ability to get others to do what he wanted; he was gifted in leadership and needed opportunities to develop his abilities and skills as a leader. Albert was very creative in his thinking; his teachers saw his ideas as pushing the limits. Gifted in creative thinking, he was also academically talented in English and social studies. Sara was an outstanding musician and took advantage of opportunities to develop her musical talents. All of these students were recognized as gifted and/or talented, but each one was unique. Each pupil needed services to allow him or her to make continuous progress in his or her area of strength.

Insights
Using a Rubik's Cube as a Metaphor to Understand Giftedness

Students can manifest giftedness in multiple ways, through either academics, the arts, or behavior (task commitment) (Kaiser, 2012). A common misconception is that there is one definition of giftedness when obviously this is not the case (Hunsaker, 2012). Across the United States, the definition of what qualifies a student as gifted and/or talented varies, which can lead to many opinions and ideas about gifted individuals. How can we integrate all these views and definitions into a more generalized description of individuals who are gifted and talented? We can use the metaphor of a Rubik's Cube to help gain insight into how one defines an individual as gifted.

One defining factor of a Rubik's Cube is its eye-catching stickers. Without the colored stickers, a Rubik's Cube looks like a typical cube. Likewise, observing students' physical appearance or behavior does not support or define their giftedness. Gifted students can look like any other pupil. Even individuals deemed as "behavior problems" can display gifted traits. It is the stickers and how one manipulates the Rubik's Cube that makes it unique. With gifted individuals, one cannot predetermine students' abilities through their gender, race, culture, or behaviors in the classroom. It is their potential and abilities that make individual students gifted.

The multiple colors on a Rubik's Cube demonstrate how giftedness doesn't only mean a student is gifted in cognitive ability. A common misconception is that academic ability is what qualifies a student as gifted. However, giftedness can be shown not just in one's cognitive abilities but in creativity and/or task commitment (Renzulli & Reis, 2012). There are five different specific categories that can identify students as gifted—general intellectual ability, specific academic aptitude (math, science, language arts, social studies, etc.), creative or productive thinking, leadership ability, and visual and performing arts. These categories expand the qualities of giftedness beyond cognitive ability.

A factor in solving a Rubik's Cube is its requirement of high levels of critical thinking. An individual who is gifted and talented is one who goes beyond high achievement. Gifted students possess the aptitude to perform "at remarkably high levels or accomplishments when compared with others of their age" and are "more adept at the kinds of task represented by simultaneously handling multiple sources of information" (Robinson, Ziegler, & Gallagher, 2000). As the purpose of the Rubik's Cube is to arrange the colors together, it is how individuals think and display their abilities that truly defines them as gifted.

One can manipulate a Rubik's Cube to have thousands of color combinations. Gifted students can have any combination of abilities, gifts, talents, disabilities, and other characteristics. One cannot limit giftedness into one single definition, list, or box. There are many different combinations to solve a Rubik's Cube, just as there are multiple ways to identify giftedness.

—Meghan Althauser

Sources: S. Hunsaker, "Information Theory as a Guide to Decision Making," in S. Hunsaker (Ed.), *Identification: The Theory and Practice of Identifying Students for Gifted and Talented Education Services* (Waco, TX: Prufrock Press, 2012), pp. 1–23.

S. Kaiser, "Characteristics of Gifted Children as a Guide to Identification," in S. Hunsaker (Ed.), *Identification: The Theory and Practice of Identifying Students for Gifted and Talented Education Services* (Waco, TX: Prufrock Press, 2012), pp. 75–99.

J. Renzulli and S. Reis, "Defensible and Doable: A Practical Multiple-Criteria Gifted Program Identification System," in S. Hunsaker (Ed.), *Identification: The Theory and Practice of Identifying Students for Gifted and Talented Education Services* (Waco, TX: Prufrock Press, 2012), pp. 25–56.

M. Robinson, E. Zigler, and J. Gallagher, "Two Tails of Normal Curve: Similarities and Differences in the Study of Mental Retardation and Giftedness," *American Psychologist, 55*(12), 2000, pp. 1413–1424.

Following are some important features of giftedness and talent, as used in this chapter and applied in school settings:

- Each state establishes its own definition of children and young people who are gifted and talented. Although there are similarities, it is important to know the definition in the state where you live and/or work.
- In states in which children who are gifted constitute a category of exceptionality, laws governing special education also apply to children and young people with gifts and talents.

- Being specific about the area of giftedness will make it possible to offer appropriate services and educational opportunities to allow continuous progress to be made in each category of talent or giftedness. Being specific also facilitates communication when describing a young person as being gifted in mathematics, gifted in leadership, or intellectually gifted.
- Using giftedness and talent interchangeably will allow for concentration on the performance or potential for performance at levels that are exceptional in comparison with those of others of the same age, environment, or experience.
- Giftedness and talent will be found in children from all ethnic and racial groups and from all socioeconomic levels. Giftedness is also found among children with disabilities (twice-exceptional children) and English learners.

Assessing Giftedness and Talent

The goal of assessment is to enable educators and parents to address the strengths and needs of children who are gifted and talented in one or several categories. A thorough assessment paints a picture of the child, including his or her characteristics, interests, and strengths. Each category of giftedness must be assessed in different ways, using both informal and formal measures. Multifactor assessment of a student's strengths may include such diverse informal measures as a portfolio of work samples, anecdotal records, checklists or rating scales of gifted characteristics, and evaluations by experts of a pupil's creative products or performances (Borland, 2014).

A specific example of an informal measure of giftedness is the "jot-down." Jot-down forms can be used to help teachers focus on behaviors that in combination indicate giftedness. Teachers observe characteristics and behaviors and "jot down" the names of pupils they see demonstrating the behavior described in the box on a jot-down sheet. (See Figure 15.3 for an example of a jot-down.) Using jot-down sheets enables educators to observe students in class and to gather information about them as they encounter new and challenging learning experiences. Behaviors in the boxes on the jot-down sheets may be seen in all children; when observed in clusters, however, they may indicate a child who is gifted and talented intellectually, academically, creatively, in leadership, or in the visual or performing arts. Please note that all characteristics are not seen in a positive light.

Checklists provide another way of assessing a pupil's gifts and talents. The Pfeiffer-Jarosewich Gifted Rating Scales (Pfeiffer & Jarosewich, 2003) for school-age children are one example of an assessment instrument that looks at the various dimensions of giftedness. Teachers evaluate students in the areas of intellectual ability, academic ability, creativity, the arts, and motivation, as well as leadership abilities. Data gleaned from this rating scale can then be used with other sources of information to assist professionals in developing a picture of the student's strengths.

Teachers who are knowledgeable about the characteristics of children who are gifted become talent scouts as they document behaviors that are indicative of giftedness in various categories. It is important for educators to understand that giftedness comes in many different forms, each with recognized needs. The needs of students who are gifted and talented in each category arise from strengths rather than from deficits—strengths that make them children with exceptionalities when compared with age peers.

Obviously, the first step in addressing the needs of individuals who are gifted and talented is to have educators who are knowledgeable about their characteristics. Applying this knowledge allows teachers to recommend the pupil for additional informal and formal assessment and to make accommodations for the student in their curriculum. Parent and peer nominations are also useful in identifying students, and self-nomination is often a good predictor of leadership and creativity potential.

Tests of intellectual ability provide a formal measure of intellectual giftedness. No child can be fully represented by a number, yet tests of intellectual ability provide important information in identifying intellectual giftedness and planning appropriate modifications and services. Individual measures of intelligence such as the Wechsler Intelligence Scale for Children (5th ed.) (Wechsler, 2014) or the Stanford-Binet Intelligence Scales (5th ed.) (Roid, 2003) are preferred to group measures for their ability to present a more comprehensive assessment. Another critical consideration is to look for instruments that are not biased. Up-to-date information on assessment measures is vital to planning and implementing an identification process that is defensible. Once formal measures indicate intellectual giftedness, further assessment should be made to identify areas of the curriculum that need to be differentiated to allow the student to be challenged academically and intellectually.

Figure 15.3 An Example of a Jot-Down Sheet

Specific Academic Area Jot-Down

Brief description of observed activity _____

Check one: _____ Language arts _____ Social studies _____ Math _____ Science

Date _____/_____/_____ Month Day Year

Teacher _____

Grade _____ School _____

1. As students show evidence of the following characteristics in comparison with agepeers jot their names down in the apropriate box(es).
2. When recommending students for gifted services use this identification jot-down as a reminder of student performances in this specific academic area.

Sees connections.	Asks many probing questions.	Shares what he/she knows, which may be seen as answering "too often."	Provides many written/oral details.
Is widely read or likes to read about subject area.	Absorbs information quickly from limited exposure.	Has a large vocabulary in subject area.	Benefits from rapid rate of presentation.
Displays intensity for learning within subject area.	Requires little or no drill to grasp concepts.	Generates large number of ideas or solutions to problems.	Has knowledge about things age peers may not be aware of.
Prefers to work independently with little direction.	Displays leadership qualities within subject area.	Applies knowledge to unfamiliar situations.	Offers unusual or unique responses.

Source: Developed by L. Whaley and M. Evans, The Center for Gifted Studies, Western Kentucky University.

Formal assessment of specific academic ability can best be made with instruments that remove the learning ceiling. **Off-level testing** (the use of measures intended for older children) is important in assessing giftedness in a specific academic area. Grade-level achievement tests have a low ceiling and do not allow a child to demonstrate what he or she knows in the particular content area being assessed. Examples of off-level testing are using the Woodcock-Johnson IV Tests of Achievement (Schrank, Mather, & McGrew, 2014) to measure a specific area of reading or mathematics or using the SAT (originally the Scholastic Aptitude Test, and later the Scholastic Assessment Test) with middle school students to ascertain the level of reasoning and achievement in mathematics or verbal ability. Giftedness in a content area can be assessed through academic work, but

students who are not challenged often will not show their best effort and produce high-level products. Students who are gifted in a specific academic area usually demonstrate their high level of work when given opportunities to take part in designing the learning experience, allowing them to pursue an aspect of the content area of great interest. Preassessing each unit allows the assessment of knowledge and interests in a specific content area to be ongoing and reflect the academic progress being made.

off-level testing The use of assessment instruments designed for older students when evaluating the academic ability of a child thought to be gifted.

Teachers frequently assess creativity by evaluating the creative products of students.

©iStockphoto.com/markchentx

Creativity is defined in many ways—creative personality, creative products, creative thinking. Measures to assess creativity, therefore, must be chosen to match the kind of creativity that is being identified. Educators frequently assess creativity through creative products or tests of creative thinking. To assess products for creativity, it is wise to have scoring guides or rubrics available to students as they embark on creating the products. Tests by E. Paul Torrance (1966, 1998), Frank Williams (1993), and Gail Ryser (2007) are frequently used to assess creative thinking skills. A more recent assessment instrument is the Developing and Assessing Products (DAP) Tool (Roberts & Inman, 2015a), which uses creativity as one of four components when evaluating student work products.

creativity A term with multiple meanings, generally referring to the production of novel or original ideas or products.

Educators often equate leadership with elected positions. Being elected to office, however, is only one possible indicator of talent in leadership. It is best to identify leadership talent by observing behaviors that are indicators of leadership potential. Students should have the opportunity to present a leadership portfolio, including evidence of leadership opportunities outside of school. Leadership may be shown in a specific academic area, one or more of the visual or performing arts, or an area of service. Self-nomination through a portfolio can be coupled with peer nomination. Identifying leadership potential is important in order to match leadership opportunities with young people ready to develop their leadership skills.

Specialists in a specific talent area are appropriate individuals to assess talent in the visual and performing arts. As experts in the visual and performing arts, they are prepared to recognize talent that is exceptional for a young person when compared with others of the same age and/or background. Products, sometimes assembled in a portfolio, and recorded or actual performances provide the means for assessing talent in the arts. Of course, recognizing and identifying talent is important in order for schools to provide learning opportunities to develop the talent to the highest levels possible.

School districts should establish policies that reflect best practices in screening and assessment (Gubbins, 2006; Johnsen, 2018; Roberts, 2014):

- Each district should have a written plan for nominating and identifying students for gifted services.
- The nominating process for gifted education services should be ongoing.
- Screening for services can occur at any point in the school year.
- Assessment should be made in the language in which the student is fluent.
- Nonbiased measures should be used, taking into consideration ethnicity, culture, developmental differences, gender, economic conditions, disabilities, and environmental influences.
- Multiple measures include self-nomination, parent and teacher nomination, product and performance assessment, portfolios, and test scores.
- The school district should have written procedures on informed consent, student retention, student reassessment, student exiting, and appeals procedures.

Differences Among Children Who Are Gifted and Talented

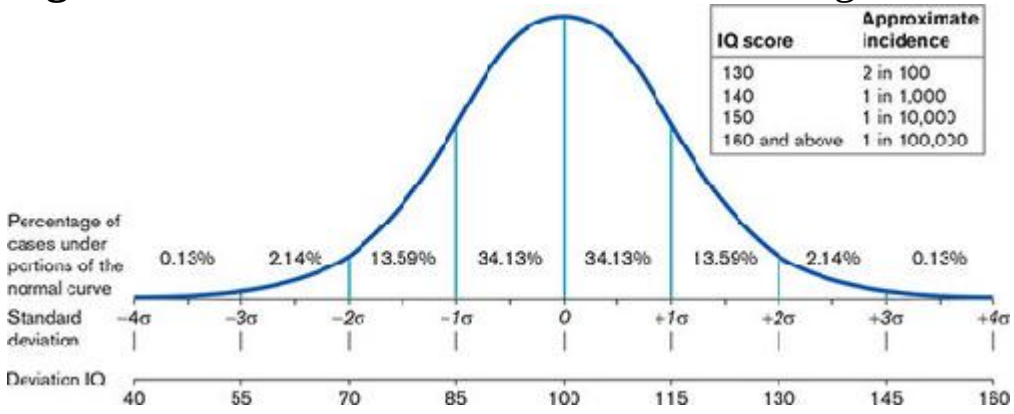
Although individuals who are gifted and talented share many characteristics, they also differ in a variety of ways. The differences among individuals in each category of giftedness are important to recognize, for they indicate the type of instructional modifications needed for the students to make continuous progress. Knowing differences allows for the identification of children who do not demonstrate all of the characteristics of the stereotype of the student who is gifted and talented. Assessment provides the data and information needed to understand the degree of giftedness. Off-level testing (using measures that allow for assessing beyond-grade-level performance) is necessary to remove the ceiling effect of grade-level assessment. Individuals who perform at or show the potential to perform at a very high end for any category of giftedness and talent are often referred to as highly or profoundly gifted or talented.

As one examines individuals in each category of giftedness, the degree of giftedness is most apparent among individuals who are gifted in intellectual ability. Certainly IQ is not the only indicator of a person who is intellectually gifted, but it is one criterion that should be considered. Looking at a normal curve, an IQ score that is two standard deviations above the mean may qualify a student for gifted services, but other young people will score three and four standard deviations above the mean (see Figure 15.4). Obviously, these pupils are significantly different from the average child, but they also differ significantly from each other. The specific characteristics of each student who is gifted become important when educators are matching instruction to the needs of the individual. A “one-size-fits-all” approach to service options for students with gifts and talents is inappropriate because it does not match services to needs or allow for the continuous progress of children or young adults.

Exceptional levels of potential and performance can be found in all academic and talent categories. For example, young people who are gifted

mathematically need to work above grade level, and a few are able to work several grades above their age-mates. One young third grader successfully completed a year of algebra with eighth graders, scoring at the top of the class. A 13-year-old studied calculus on his own, and then took the College Board AP Calculus exam. He scored a 5, the highest score possible on the AP (officially called Advanced Placement) exam, usually earning the student six hours of college credit in calculus. Only a very few children of these ages could or should be working at these levels; however, such accelerated options are as important as opportunities. Providing such advanced study is essential in order to allow these students to continue learning in their area of specific academic giftedness.

Figure 15.4 Theoretical Distribution of Intelligence



Source: Boxed matter from G. Cartwright, C. Cartwright, and M. Ward, *Educating Special Learners*, 2nd ed. (Belmont, CA: Wadsworth, 1981), p. 191.

A Brief History of the Field of Gifted and Talented Education

The field of gifted and talented education in the United States has its roots in the late nineteenth century but grew and matured in the twentieth century. The twenty-first century brings both challenges and promise to the education of children who are gifted. The history of the field will be described through key events, individuals, and movements that have shaped the study of giftedness and the implementation of programming and services to address the needs of children and youth who are gifted and talented.

The First Half of the Twentieth Century: Pioneering the Field

The development of intelligence testing in the late nineteenth century and the early part of the twentieth century provided the means for and created interest in the study of gifted individuals. The initial work on measuring intelligence was done by Alfred Binet in France; its purpose was not to measure high-end intelligence but rather to identify children and adults who might not benefit from schooling. William Stern, a German psychologist, developed the formula for the intelligence quotient or IQ. With the ability to measure intelligence, cognitive science emerged as a field of study.

Lewis Terman (1925), known as the founder of gifted education, conducted a major longitudinal study of gifted children. The measure used to define giftedness was an IQ of 140 or higher. This study of 1,500 children began in the 1920s and continued for seventy years (beyond Terman's lifetime by colleagues), following the children through their adult lives. The study provided information about the characteristics of gifted children and disproved widely held beliefs that children who are gifted and talented are characterized by social and emotional peculiarities and that "early ripe" leads to "early rot." Debunking the mythology about individuals who are gifted was a major contribution of this long-term study.

Another early pioneer in the field of gifted education was Leta S. Hollingworth, who began a longitudinal study of highly gifted children in 1916. Her study yielded information about the characteristics of this exceptional population. She also wrote *Gifted Children: Their Nature and Nurture* (1926), the first comprehensive textbook on gifted education. Hollingworth directed attention to the emotional needs of children who are gifted and believed that giftedness is influenced both by heredity and by environment, a view still popular today. Hollingworth was one of the first to start classes for gifted children, believing that appropriate learning opportunities must be matched to students' needs and their readiness to learn.

The 1950s, 1960s, and 1970s: Establishing Foundations for the Field

Understanding intelligence as the *g* factor (general intelligence) is based on the belief that intelligence is a unitary trait. Founded on work begun in the 1950s, however, J. P. Guilford in 1967 published *The Nature of Human Intelligence,* in which he described multiple intelligences. Guilford's theory, the Structure of Intellect, provides a theoretical foundation for the concept of intelligence. Guilford originally proposed 120 types of intelligences. His theory of multiple intelligences continues to have a tremendous impact on the understanding of children and youth who are gifted and talented.

The emergence of national organizations has fostered the development of the emerging field of gifted education. The National Association for Gifted Children, started in 1954, now has affiliates in most states. The Association for the Gifted, a division of the Council for Exceptional Children, was established in 1958 and advocates appropriate educational opportunities for children who are gifted and talented. Parents and educators combine their efforts in these national organizations and their state affiliates to ensure that the needs of children who are gifted and talented are considered in the development of policies and legislation.

The next important impetus to gifted and talented education came in 1957 when Russia launched *Sputnik 1.* This demonstration of Soviet progress in science and technology shook public confidence in the United States and began the space race. Suddenly, legislators sought to provide challenging learning opportunities for young people in mathematics and science, with the goal of producing superior mathematicians and scientists. During international crises, gifted individuals often are considered valuable resources to be cultivated. During less tumultuous times, however, their value among the public wavers, producing a roller-coaster effect.

In 1961, Virgil Ward coined the term *differential education* to describe a curriculum that would enable gifted students to learn at appropriate levels.

In *Educating the Gifted: An Axiomatic Approach*, Ward set forth guidelines for writing such a curriculum. Although the curriculum does not need to be entirely different for academically talented students, it must be tied to their characteristics in order to enhance learning. It should be different in ways that encourage learning by young people who are ready to learn at more complex levels that would not be appealing to all students. By highlighting the need to design curriculum to address the needs of academically talented youth—a concept introduced decades earlier by Hollingworth—Ward's work provides a foundation for differentiating the curriculum in defensible ways.

The 1972 Marland Report, mentioned earlier, documented the lack of recognition of the needs of children who are gifted and talented. More than half the personnel in the schools surveyed responded that they had no gifted children in their districts, and twenty-one states reported no services for students who are gifted. This report, and materials appended to it, noted that the societal and personal costs of not providing services to this population of exceptional children are high. The Marland definition of giftedness (page 499) broadened the view of giftedness from one based strictly on IQ to one encompassing six areas of outstanding or potentially outstanding performance.

The passage of Public Law 94–142, the Education for All Handicapped Children Act, in 1975 led to an increased interest in and awareness of individual differences and exceptionalities. PL 94–142, however, was a missed opportunity for gifted children, as there was no national mandate to serve them. Mandates to provide services for children and youth who are gifted and talented are the result of state rather than federal legislation.

The 1980s and 1990s: The Field Matures and Provides Focus for School Reform

Building on Guilford's multifaceted view of intelligence, Howard Gardner and Robert Sternberg advanced their own theories of multiple intelligences in the 1980s. Gardner (1983) originally identified seven intelligences—linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, and intrapersonal (see Table 15.2). Describing these intelligences as relatively independent of one another, he later added naturalistic as an eighth intelligence (Gardner, 1993). Sternberg (1985) presented a triarchic view of "successful intelligence," encompassing practical, creative, and executive intelligences. Using these models, the field of gifted education has expanded its understanding of intelligence while not abandoning IQ as a criterion for identifying intellectually gifted children.

A Nation at Risk (National Commission on Excellence in Education, 1983) described the state of education in U.S. schools as abysmal. The report made a connection between the education of children who are gifted and our country's future. This commission found that 50 percent of the school-age gifted population was not performing to full potential and that mathematics and science were in deplorable conditions in the schools. The message in this report percolated across the country and was responsible for a renewed interest in gifted education as well as in massive education reform that occurred nationally and state by state.

Table 15.2 Gardner's Multiple Intelligences

Table 15.2 Gardner's Multiple Intelligences

Intelligence	Characteristics	Possible Career Choices	Examples
Linguistic	Ability to use language	Novelist, lecturer, lawyer,	Ernest Hemingway,

Intelligence	Characteristics	Possible Career Choices	Examples
	effectively in written and oral expression; highly developed verbal skills; often thinks in words	playwright	Martin Luther King Jr.
Logical-mathematical	Ability to use calculation to assist with deductive and inductive reasoning; good at seeing patterns and relationships; thinks abstractly and conceptually; tends to be logical and systematic	Mathematician, physicist	Albert Einstein, Stephen Hawking
Spatial	Ability to manipulate spatial configurations; good at pattern recognition, sensitive to shape, form, and space; thinks in pictures or images	Architect, sculptor, interior decorator, engineer	I. M. Pei, Michelangelo
Bodily-kinesthetic	Ability to control and skillfully use	Dancer, athlete, surgeon	Mikhail Baryshnikov,

Intelligence	Characteristics	Possible Career Choices	Examples
	one's body to perform a task or express feelings and ideas; able to communicate through body language; keen athletic ability		Michael Jordan
Musical	Ability to discriminate pitch; sensitivity to rhythm, texture, and timbre; ability to hear themes; production of music through performance or composition	Musician, composer	Leonard Bernstein, Ludwig van Beethoven
Interpersonal	Ability to understand other individuals—their actions, moods, and motivations—and to act accordingly; sensitive to ideas and feelings of others, empathetic	Counselor, teacher, politician, salesperson	Carl Rogers, Nelson Mandela

Intelligence	Characteristics	Possible Career Choices	Examples
Intrapersonal	Ability to understand one's own feelings, values, and motivations; self-reflective, inwardly motivated; insightful and self-disciplined	Therapist, religious leader	Sigmund Freud, Mother Teresa
Naturalistic	Ability to understand interrelationships; capacity to discriminate and classify, recognizes patterns and characteristics; evidences a concern for the environment, sensitive to natural phenomena	Conservationist, forester	John Audubon, Charles Darwin

Source: Adapted from N. Colangelo and G. Davis (Eds.), *Handbook of Gifted Education*, 3rd ed. (Boston, MA: Allyn & Bacon, 2003), p. 102. Adapted by permission.

The Jacob K. Javits Gifted and Talented Students Education Act (PL 100–297) was passed in 1988. The Javits Act states that "gifted and talented students are a national resource vital to the future of the Nation and its security and well-being" [Sec. 4102 (a) (1)]. This legislation reestablished the Office of the Gifted and Talented (originally created in 1974) and founded a national research center focusing on gifted children,

demonstration projects in gifted education, and efforts aimed at identifying and serving pupils with gifts and talents from traditionally underrepresented groups. In the early 1990s, the Office of Educational Research and Improvement in the U.S. Department of Education issued *National Excellence: A Case for Developing America's Talent* (Ross, 1993), the second national report on gifted children. The National Research Center on the Gifted and Talented generated research that was used by decision makers to design and implement policy and enact legislation. The demonstration projects focused on developing talents in areas with a large percentage of children who have been underrepresented in gifted services.

The Twenty-First Century: Challenges and Promise

The Javits legislation, reauthorized in 2001 as part of the No Child Left Behind Act (PL 107–110), was funded at $11.14 million in fiscal year 2004. Congress approved an appropriation of approximately $7.6 million for the Javits program in fiscal year 2008. The Javits funding was eliminated in 2010, curtailing research projects not yet completed. After a gap in funding, the Javits Act was funded again in 2013, and funding reached $12 million in 2016, the highest level in the history of the Javits Act. The National Center for Research on Gifted Education was also funded. Located at the University of Connecticut, the center has a partnership with the University of Virginia. In 2018, the Javits funding continued at $12 million.

Academic standards have become increasingly important in the twenty-first century. The National Association for Gifted Children (2010) issued the *Pre-K–Grade 12 Gifted Programming Standards*. These standards focus on student outcomes and encourage collaboration among general education teachers, special educators, and teachers of the gifted in an effort to assist students in achieving projected outcomes. In 2010, the National Governors Association Center for Best Practices in conjunction with the Council of Chief State School Officers put forth the Common Core State Standards Initiative (2019), which provided standards in mathematics and English/language arts for Grades K–12. In 2013, the Next Generation Science Standards (2019) became available and were adopted by several states. These curriculum standards have evolved into state content standards, maintaining focus on higher-level thinking—a “must” for all children, including those who are gifted and talented.

In December 2015, the Elementary and Secondary Education Act was reauthorized as the Every Student Succeeds Act (ESSA) (PL 114–95). This legislation changed the public school scene across the country, giving more authority to the states. The Javits Act was incorporated in this legislation,

and students with gifts and talents are included in both Title I and Title II of ESSA.

Grade-level proficiency had been the focus of the No Child Left Behind Act since it was first enacted in 2001. Public Law 114–95 changed the reporting requirements for schools and school districts so that reporting of achievement now occurs across all levels, thus not setting “proficient” as the goal or ceiling. For pupils with gifts and talents, the goal of reaching proficiency was very limiting as their level of achievement was often beyond what was being taught. When this occurred, reaching proficiency required them to move backwards or stand still. Instead, proficiency or grade-level achievement is only one point along the way to achieving at levels at which gifted students are capable of learning.

Prevalence of Giftedness and Talent

The National Association for Gifted Children (2019) states that

> [i]t is difficult to estimate the absolute number of gifted children in the U.S. and the world because the calculation is dependent on the number of areas, or domains, being measured and the method used to identify gifted children. However, many consider children who are in the top 10 percent in relation to a national and/or local norm to be a good guide for identification and services. (para. 3)

Of course, the number of students identified as gifted and talented depends on the definition of giftedness used by each state. Many pupils exhibit gifts and talents across several domains, and this overlap results in much higher estimates of who is gifted or talented. Some professionals (Renzulli & Reis, 2003) believe that 10 to 15 percent of the school-age population can be thought of as gifted. The National Association for Gifted Children working in conjunction with the Council of State Directors of Programs for the Gifted (2015) estimates that approximately 3 million children are gifted and talented. This group represents about 6 percent of the school-age population in the United States. Likewise, statistics gathered by the federal government mirror this estimate (National Center for Education Statistics, 2018).

Etiology of Giftedness and Talent

What makes a child gifted and talented? No doubt giftedness results from a combination of genetic makeup and the environment. No one knows the precise role of genetics or of the environment, but it is clear that both genetic patterns and environmental stimulation play key roles in developing a child's potential to perform at exceptionally high levels (Kauffman, 2013). Understanding giftedness necessitates recognizing that the relationship between genes and a stimulating environment is complex. No longer is it acceptable to view intelligence as fixed at birth; rather, potential intelligence is created by a far more complex interplay between nature and nurture (Clark, 2013).

Neuroscience provides evidence of the vital role played by stimulation in increasing a child's capacity to learn. According to Clark (2013), "the development of intelligence is enhanced or inhibited by the interaction between the genetic pattern of an individual and the opportunities provided by the environment throughout the individual's lifespan" (p. 24). The brain changes physically and chemically when stimulated or challenged. Parents and educators, therefore, play significant roles in developing a child's capacity to learn at high levels.

Characteristics of Individuals Who Are Gifted and Talented

Understanding the characteristics of children and young people who are gifted and talented can help educators and parents recognize behaviors that are indicative of giftedness (see Table 15.3). Many characteristics resemble the characteristics of all children; however, the degree and intensity of the characteristic provide clues that the child may be exceptional. For example, all children are curious, but children who are intellectually gifted and talented may ask so many probing questions that adults think they may be driven to distraction. Questions that are unusual in their connection-making provide a signal of high-level thinking.

Interestingly, the very characteristics identified in Table 15.3 sometimes result in a phenomenon known as the "paradoxical negative effect" (Blackbourn, Patton, & Trainor, 2004). In this situation, behaviors displayed by students with gifts and talents may work to their detriment. For example, high verbal abilities may lead the student to dominate class discussion, self-confidence may be misinterpreted as arrogance, and a dislike for rules and routine may be perceived as a disruptive influence.

Children who are intellectually gifted and talented often perform childhood tasks on an advanced schedule. They may talk in sentences early, read before entering school, or think abstractly before age-mates. These children display exceptional memories and learn at a rapid pace. They are knowledgeable about things about which their age peers are not aware. They show a propensity for learning and, if allowed to learn about areas of interest at a challenging pace, may not distinguish work from play.

A second characteristic is exceptional talent in one or more specific academic areas. One child may be exceptional in mathematics but perform on grade level in language arts; another may be a gifted writer but not evidence the same level of talent in science. Children who are gifted in a specific academic area read widely and intently about that subject area,

require little or no drill to grasp concepts, and have large vocabularies in that specific subject area. This intense interest may be viewed as being "single-minded" or may be seen as an opportunity to develop the interest and talent to an exceptional level. Such focus is an advantage when choosing a college major or, later, a career.

A third category of giftedness is creativity. All children may be creative; however, some are exceptionally creative. These children have many unusual ideas and vivid imaginations. They have a high level of energy that may get them in trouble or incorrectly viewed as being hyperactive. They may daydream and become easily bored with routine tasks. They have a high level of tolerance for ambiguity and are risk takers. Creative children view the world from their own vantage points. With appropriate experiences, they may be future innovators and entrepreneurs.

Leadership is another category of giftedness. Others look to leaders when a decision needs to be made, and children who are gifted in leadership are sought after to lead activities, projects, and play. Leaders initiate activities and make plans to reach goals. They get others to work toward goals, which may be desirable or undesirable. Children who are leaders may be seen as bossy. Children who display early leadership abilities likely have personal qualities that make them charismatic.

Table 15.3 Representative Characteristics of Students Who Are Intellectually Gifted and Talented*

Table 15.3 Representative Characteristics of Students Who Are Intellectually Gifted and Talented*

Category	Attributes
Academic/Learning Characteristics	• Ability to reason and think abstractly • Acquires information easily • Enjoys learning • Highly inquisitive

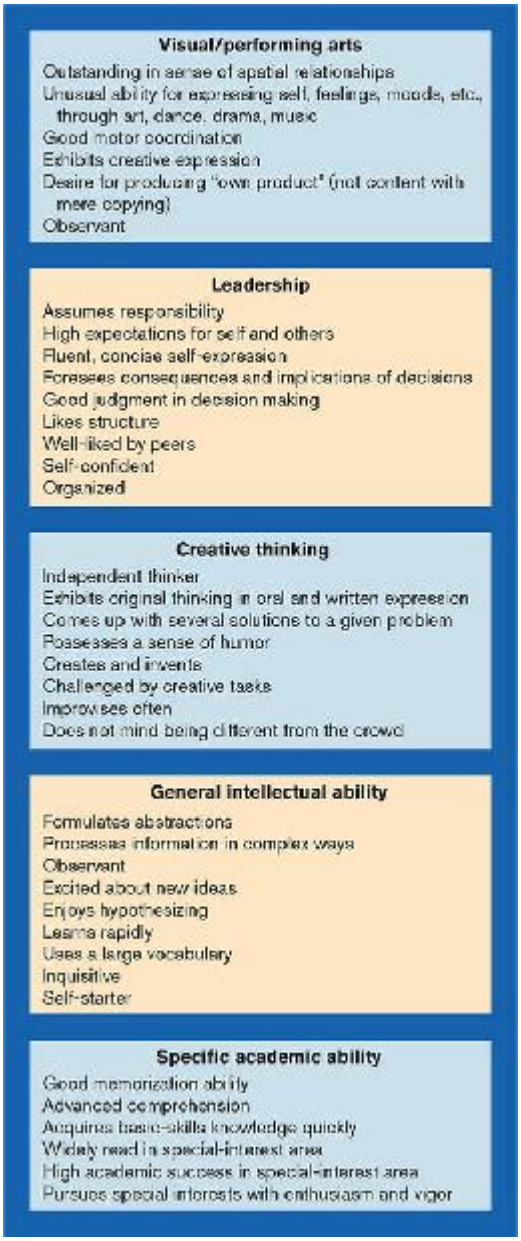
Category	Attributes
	• Demonstrates interest in a variety of areas/activities • Generalizes knowledge to novel settings • Intellectually curious • Highly motivated, persistent learner • Sees relationships among seemingly unrelated items, facts, and ideas • Early reader • Exhibits sustained attention and concentration • Excellent memory • Highly verbal • Generates elaborate and possibly nontraditional responses to questions • Good problem-solving skills • Conceptualizes and synthesizes information quickly
Social and Emotional Characteristics	• Works well independently • High energy level • Self-confident • Exhibits qualities of leadership • Relates well to older classmates, teachers, and adults • Sensitive and empathetic • Intrinsically motivated • Risk taker • Critical of self, strives for perfection • Concern for justice and idealism • Intense • Dislike of routine, rules, and regulations • Likely to have internal locus of control

* Attributes are examples only; not all individuals identified as intellectually gifted will exhibit these features.
Source: Adapted from B. Clark, *Growing Up Gifted*, 7th ed., © 2008.

A final category of giftedness and talent focuses on the visual and performing arts. Some children may display exceptional talent in art, music, dance, and/or drama. They exhibit an intense interest in one or more of the visual and performing arts. They quickly grasp concepts in the talent area, demonstrate original work in that area, and perform at exceptional levels when compared with their age-mates.

Figure 15.5 summarizes characteristics of individuals who are gifted and talented on these five dimensions of giftedness. See the accompanying Insights feature (page 515).

Figure 15.5 Characteristics of Various Areas of Giftedness



Source: Archived material from the National Association for Gifted Children (NAGC). This material may not be reprinted without permission of NAGC, Washington, DC, (202) 785-4268, www.nagc.org.

Insights
Myths and Truths About Gifted Students

Common Myths

- All children are gifted.
- You must be gifted in everything if you are truly gifted.
- Gifted children will make it on their own.
- It is most important for teachers to work with struggling students.
- Gifted learners make straight As.
- IQ is the only valid determiner of giftedness.
- It is important to have gifted students in classes to be role models.
- Acceleration hurts the child emotionally and socially.
- Tutoring other students is an excellent service option for gifted students; students really learn content when they teach it.
- If a school offers Advanced Placement or gifted programming, classroom teachers do not need to worry about addressing gifted learners' needs.
- Gifted learners are white, middle- and upper-class students.
- Students with learning disabilities cannot be gifted.
- Gifted education is elitist.

Truths About Gifted Students

- Although all children are special, gifted children are exceptional learners, often learning at a pace and level of complexity that exceeds those of other children of the same age.
- Children vary greatly in how their giftedness is demonstrated. Some are gifted in one area and at grade level (or below) in other areas, while some may show their exceptionality in multiple areas.
- Just as athletes need coaches to be their best selves, so gifted children need effective teachers to develop their potential.
- It is important for all students to learn on an ongoing basis. Educators need a repertoire of strategies in order to appropriately challenge all students.
- Because a child has the potential to do well in a class does not mean that he has the motivation or work ethic to perform at the A level.
- IQ is a valid determiner, but using multiple measures is best practice.
- Gifted children need to be placed in classes where they can make continuous progress. Students don't relate to role models who are too different from themselves.
- When appropriately implemented, acceleration is the most effective and least costly of all services for learners with gifts and talents.
- All children deserve to learn something new every day, including those with gifts and talents. A student who tutors has typically mastered the material; people cannot learn something they already know.
- Advanced students learn at a faster pace and with greater complexity in their areas of giftedness than other students. Services are needed in all learning environments.
- Students with gifts and talents span all demographics. They come from all ethnicities, all economic backgrounds, all religions, and all areas of the country, and some may not speak English as their first language.
- Students are multifaceted, able to have gifts and talents accompanied by other exceptionalities, such as a learning disability, attention deficit hyperactivity disorder, or visual impairment. These students are twice-exceptional learners.
- Gifted learners are exceptional students in that they learn differently from the typical learner. Strategies should address their unique needs.

Source: Adapted from J. Roberts, T. Inman, and J. Robbins, *Introduction to Gifted Education* (Waco, TX: Prufrock Press, 2018).

Educational Considerations

Research suggests that most classroom teachers make no or only minor modifications to meet the unique needs of learners who are gifted (Archambault et al., 1993). Westberg and colleagues (Westberg, Archambault, Dobyns, & Salvin, 1993) observe that little attention is given to differentiating instruction, curricular practices, or grouping arrangements when teachers are confronted with pupils who are gifted. Ten years later, Westberg and Daoust (2003) replicated the earlier study and found that differentiation practices were no more likely to be used than they were a decade earlier. This situation is regrettable. Children who are gifted and talented need opportunities to work hard on challenging learning tasks. Instructional practices need to be modified in order to address the cognitive and social/emotional needs of students with unique talents and gifts.

Educators use a variety of instructional strategies to serve pupils who are gifted and talented. This eclectic approach reflects a contemporary trend of not endorsing any one model of instructional delivery (Gibson & Efinger, 2001), but rather providing instruction that best meets the needs of the individual learner. Here we review several different instructional strategies that can benefit pupils who are gifted and talented.

Differentiation

All children in the same grade are not expected to wear the same size shoes or sweaters. Likewise, parents and educators should expect tremendous differences in interests, needs, and abilities among children and youth of the same age. **Differentiation** of the curriculum is necessary in order to accommodate these differences and to provide a learning environment in which all children, including children who are gifted and talented, can thrive. “In differentiated classrooms, teachers begin where students are, not the front of a curriculum guide. They accept and build upon the premise that learners differ in important ways” (Tomlinson, 1999, p. 2).

> **differentiation** A modification of the curriculum that enables students who are gifted to learn at a level appropriate to their ability and level of readiness.

“Each child deserves to make continuous progress, making at least a month’s achievement gain for a month in school. Differentiation makes continuous progress possible” (Roberts & Boggess, 2011, p. 86). For children with gifts and talents, it is important to remove the learning ceiling. Children need to learn challenging content and to develop cognitive skills throughout their school careers. Students who do not learn to tackle challenging learning tasks may never learn to do so. See the accompanying Strategies for Effective Teaching and Learning feature for a discussion about differentiated programming.

In order to make progress possible, the teacher must preassess what a pupil already knows and is able to do. **Preassessment** is the key to ascertaining appropriate levels of instruction in each content area so that new learning can occur. Preassessment is the linchpin for defensible differentiation (Roberts, 2010). In order to know what content and skills to preassess, the teacher must first have a well-planned unit of study, including content and skills recommended by local and state guidelines as well as by national standards. Preassessment will then allow the teacher to differentiate learning experiences and keep the unit challenging for all students in the

class. Without preassessing the students' knowledge and skills, teachers will assume that how well students do on the end-of-unit assessment is the result of their teaching; with preassessment, teachers will know what students knew as they began the unit.

preassessment An assessment of a pupil's previously acquired knowledge and skills; informing the teacher of where to start to provide differentiated learning experiences.

Strategies for Effective Teaching and Learning
Differentiated Instruction

The goal of schools must be to support and encourage lifelong learning. The most likely way to achieve that goal is differentiation, an instructional strategy that is a popular topic for educators to discuss but one less frequently implemented. Because all fourth or eighth graders are not at the same level of achievement in any content area and their interests differ greatly, differentiation is very important. It is the strategy that is most likely to ensure continuous progress for all children, including those who are gifted and talented.

Effective instruction for learners with gifts and talents involves five steps:

Step 1. Preassess.

Once you have planned the unit of study, the starting point in planning differentiation must be to preassess.

Guiding Question: "Who already knows the content and can demonstrate the skills even before the unit of study begins?"

Step 2. Group children for instructional purposes.

Preassessment results provide information to help you decide which students can be clustered for instructional purposes for a particular unit of study. Grouping facilitates learning, providing the vehicle for differentiating learning experiences.

Guiding Question: "Which students are ready to learn the content at the same level and would benefit from being grouped for instruction?"

Step 3. Match learner experiences to the preassessment data (level of readiness and/or interests).

Differentiation does not just mean providing different learning experiences or offering choice; rather, differentiation is the intentional match of content (basic to complex),

process (level of cognitive skill), and product (visual, written, oral, kinesthetic, and technological) (Roberts & Inman, 2015b).

Guiding Question: "How can the learning experiences be shaped to match the preassessment results and to ensure continuous progress with intellectual challenges?"

Step 4. Provide products (ways to demonstrate what has been learned) that will motivate and teach.

A variety of products can be used that will allow students to show what they have learned but in ways that will motivate them to learn.

Guiding Question: "What products will interest students and prepare them to build expertise for current and future use?"

Step 5. Reflect, reflect, reflect.

Learning experiences that remain isolated do not promote lifelong learning. If learning is to be ongoing, it is essential to reflect on what has been learned and what one wants to learn next.

Guiding Question: "What questions will promote reflection and lead to ongoing learning?"

Instructional Strategies

Curriculum Compacting

Curriculum compacting is a differentiation strategy that is used in the general education classroom (Reis & Renzulli, 2005). Simply stated, curriculum compacting is an instructional procedure whereby the time spent on academic subjects is telescoped or reduced so as to allow the student(s) to make continuous progress. The first phase is to determine the goals and objectives of the regular curriculum. The second step is to assess what the student or students already know before teaching a unit of study. If the preassessment indicates that one or more pupils have already mastered the content or a major portion thereof, this student or cluster of students will have time to delve into the content at a more complex level and to develop different and perhaps more sophisticated products. Curriculum compacting is a strategy that responds well to the characteristics of children who are gifted and talented intellectually, in specific academic areas, or in the visual and performing arts. Language arts and mathematics are two content areas where curriculum compacting has been shown to be effective (Reis et al., 2003). See the accompanying First Person feature for teaching suggestions from an award-winning educator (page 519).

curriculum compacting An instructional technique whereby the time spent on academic subjects is reduced so as to allow for enrichment activities or more in-depth learning about a specific topic; typically used with students who are gifted and talented.

Higher-Level Thinking and Problem Solving

Leaders of business and industry have told educators for decades that it is very important for students to develop higher-level thinking and problem-solving skills. When teachers combine higher-level thinking skills with significant content, all children thrive. Children who are gifted and talented may be ready for higher-level thinking and problem solving before many of

their age-mates. Services provided by a teacher of gifted pupils can complement the teaching of thinking by the general educator. A gifted resource teacher can provide opportunities for individual and team projects that require higher-level thinking.

Flexible Grouping

The one-room school is a well-known example of **flexible grouping**. A 9-year-old child could spell with 13-year-olds but do math with 7-year-olds, if those groupings matched his or her level of achievement or readiness. Preassessment provides a defensible rationale for grouping and regrouping children to allow for continuous progress. Grouping by interests, needs, or abilities (readiness levels) can be used within a heterogeneous classroom, in a homogeneous classroom, or between classrooms or teams. Flexible grouping is necessary if all children, including those who are gifted and talented, are to thrive in a classroom and make continuous progress.

> **flexible grouping** The combining or grouping of students according to needs and abilities matched to their level of achievement.

Cluster Grouping

Cluster grouping is the practice of placing five or more students who have similar needs and abilities with one teacher. For example, seven fourth-grade students who are gifted in mathematics are placed together in a classroom. The purpose of cluster grouping is twofold. First, from a practical standpoint, a teacher is far more likely to plan instruction to address needs for more advanced content and a faster pace of instruction with a cluster than with a single student. Second, others who have similar needs and interests provide an intellectual peer group as well as age-mates for the students in the cluster.

> **cluster grouping** The practice of placing five or more students who have similar needs and abilities with one teacher; promotes challenging cognitive development and positive social/emotional development.

Cluster grouping has advantages for both students and teachers. For the students who are gifted and talented, the cluster arrangement promotes challenging cognitive and positive social/emotional development. For teachers, the cluster provides a group for which to plan rather than single students sprinkled among all of the teachers.

Grouping students into clusters must be done before the school year begins. Consequently, the decision to cluster group must involve the individual responsible for class scheduling.

Educators often use a variety of instructional strategies to meet the unique needs of pupils who are gifted and talented.

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Tiered Assignments

This instructional strategy allows the teacher to offer variations of the same lesson to children with differing levels of readiness. As an example, if the class is reading *Charlotte's Web*, one group of students (Tier 1) might be working on key information about the plot and characters while Tier 2 might be asked to write a story that makes a change in the plot or in the development of a character. Pupils who are gifted and in Tier 3 might be asked to write their own chapter from the point of view of one of the characters. **Tiered assignments** allow for matching instruction to level of readiness.

tiered assignments An instructional strategy that allows the teacher to offer variations of the same lesson to students with differing levels of ability in order to provide appropriate levels of challenge.

Problem-Based Learning

The application of critical thinking skills and the development of problem-solving abilities along with the acquisition of knowledge are some of the benefits associated with using **problem-based learning** in the classroom. In this model, students are confronted with authentic, real-world situations, such as global warming, that are "ill-structured problems." The pupils are asked to solve the problem, which typically has multiple solutions rather than a "right answer." Teachers function as tutors and facilitators as the children work through various solutions and scenarios and evaluate their responses. Sometimes teachers model effective problem-solving strategies by thinking out loud and questioning their own hypotheses and recommendations. Pupils are often highly motivated and very engaged in their own learning.

problem-based learning An instructional approach in which authentic problems having multiple solutions are addressed through the application of critical thinking skills.

Pacing Instruction

Individuals who are gifted and talented learn at a faster pace in their area of talent or special interest than their age-mates. This faster pace provides the rationale for differentiation strategies. *Prisoners of Time* (National Education Commission on Time and Learning, 1994) reports,

> Some students take three to six times longer than others to learn the same thing. . . . Under today's practices, high-ability students are forced to spend more time than they need on a curriculum developed for students of moderate ability. Many become bored,

unmotivated, and frustrated. They become prisoners of time. (p. 15)

First Person: Patrice One Size Does Not Fit All

How might a classroom involved in the inclusion of gifted students look? Please take a glimpse into my Primary 1 (kindergarten) classroom, Room 21, for a moment, for inclusion is what you will see.

All of the children are working in math centers. Brandy and Alison are using random number generators (dice) to create simple addition sentences. Once they have generated two numbers to write down, they add the numbers together for the sum, and as all good mathematicians do, they double-check their work. At the same time, Lane and Shelby are busy using the random number generators to do double-digit addition. They squeal when they realize that their sum actually took them above 100. Sam and Megan are well above the regular addition process. They have stepped into the world of multiplication. They are using the random number generators and teddy bear counters to create groups representing multiplication. The entire room is a buzz of mathematical vocabulary and a celebration of learning—music to any teacher's ears. My journey to inclusion of the gifted student within my classroom was a result of realizing that I was not meeting the needs of my students.

As a seventeen-year teaching veteran, I have taught Grades K–6. Throughout those years, I have worn many hats. For a two-year period, I was the curriculum coordinator for our building. I had the pleasant task of formally assessing students as a part of a verification process of our primary talent pool process. Bright-eyed primary students sat eagerly across from me, amazing me with their high-ability thought processes. Each time a tiny student answered a question that was well above the typical/average level of learning for a primary student, I always asked, "Where did you learn about multiplication/square root/such difficult words to read?" The response was *always* the same: "My mom" or "My dad." I was saddened to never hear "My teacher." When I returned to the classroom, I became determined to be in on the fun of removing the ceiling of learning for my students. When one of my students amazes everyone by sharing something brilliant, I am hoping she or he will be able to share, "My teacher taught me that!"

As our children walk through the door of our classrooms, we must ever be cognizant of the fact that "one size does not fit all." Every classroom, without exception, is a classroom of diverse learners. Through a variety of means, teachers have the ability to orchestrate a classroom so that all needs can and will be met. The most important information a teacher must know before reaching all children includes what *each* of the children knows, what they need to know, how they are able to apply what they have learned, and what kind of connection each child has made to his or her own world.

Before every thematic unit in our kindergarten classroom, the children help prepare a KWL (sometimes a KWHL) chart. *K* stands for "What do we *know*, or think we *know*, about this subject?" The *W* represents "What do we *want to know* about this subject?" And the *L* is a follow-up for "What have we *learned* about this subject?" We also have a category for *H*, "*How* will we find out what we want to know?" The KWL chart is a good way for me to get a pulse of the class's knowledge and interest concerning the content I plan to present. I am able to use the information from the children to divide them into interest groups or to determine if the content needs to be modified in any way for particular students. The KWL chart is simply one form of preassessment used in our classroom on a regular basis. As the teacher, I simply must know *what* my children know. If a student or group of students is already equipped with the information I want to teach and I "plow ahead" with that unit without adjustments, then I have committed a grave injustice to my students. I have asked them to be patient as I teach the other students. As adults, we are outraged when we are asked to sit still and listen to something we already know forward and backward. Our children are the same. When we teach content that a child has mastered, we are asking her or him to run in one spot over and over, much like a cartoon character that never seems to get anywhere.

Children not only come to us at different levels; they learn at different paces. Once you know what the children know individually, you must monitor progress through formative assessments. If a child has mastered a concept, he or she should be able to move on. If a child knows how to do simple addition with 100 percent accuracy, he or she should not be put through the nightmarish experience of extra work in simple addition. That child is ready to move on, not run in place! Math is one area in which I enjoy using the compacting process. For that quick learner, once I find out where he or she is, we move forward. The result of the pretesting is a learning atmosphere such as I described earlier. The overall assessment process is simply described. The pretest is the map for instruction. The formative tests are the detours. The posttesting is the determination of how successful we are in finding the final destination.

Literacy in a classroom should be individualized as much as math. In my classroom, each child has his or her own word ring and reading assignments made on a weekly basis. Monitoring the word ring and reading progress at school enables the children to make continuous progress no matter what the reading level of each child may be. I love encouraging the children to go home and "impress" their parents or some other grown-up at home. When discussion of what they are learning is encouraged, the children are more prone to transfer school–learning connections to home–learning connections. Parents are certainly vital participants in their child's education. But as the teacher, you will be looked upon as the one who should set the pace. We should be ever mindful that the pace for a child means continuous learning.

Textbooks are wonderful resources for teachers, but they are certainly no substitute for allowing children to think for themselves. I love to have the children use questioning—questioning of everything. I especially enjoy setting the stage for learning with a variety of materials centered on certain content and then turning the children loose on creating their own questions. Creativity, problem solving, and real-world learning become the products of such an environment.

Imagine the absolute misery Einstein would feel today sitting in a typical primary classroom. Sitting through simple addition would be torture for him! Every classroom today has the potential of having an Einstein in it. We must make it our duty and responsibility to meet the needs of the Einsteins of the future.

—*Patrice McCrary*

2003 Kentucky Teacher of the Year

2006 All-USA Teacher Team

2008 Kentucky Teacher Hall of Fame

2009 National Teacher Hall of Fame

2011 Global Teaching Fellow

Cumberland Trace Elementary School, Warren County, Kentucky

Because children who are gifted and talented often complete their work in a fraction of the time that it takes their age-mates, teachers often provide more work to keep them busy. This practice is contrary to the needs of those children who can complete the assignment rapidly. The need for accelerated pacing must be linked with increasingly complex content and challenging learning experiences rather than additional work at the same level.

Creativity

Creativity is important for all children. According to Clark (2013), it is "a highly complex human ability that is beyond giftedness and can bring forth that which is new, diverse, advanced, complex, or previously unknown, so that humankind can experience growth in life as fuller, richer, and/or more meaningful" (p. 150). Developing creative thinking skills is an especially important element of services for children who are gifted and talented. E. Paul Torrance (1969) describes four skills that are essential for a creative thinker: originality, fluency, flexibility, and elaboration. Originality is the ability to produce novel ideas. Fluency involves the ability to generate many ideas, and flexibility is the ability to switch categories of ideas. Elaboration is the ability to provide detail to ideas. All teachers should

incorporate the teaching of creative thinking skills as an integral part of their curriculum.

Students who are gifted in creativity need opportunities to develop this talent in a risk-free learning environment (Piirto, 2007). They need to interact with creative adults, speculating on possibilities and examining the creative process as well as creative products. Pupils who are gifted thrive when given opportunities to combine their creativity with an interest in a content or talent area.

There is no one “correct” way to teach students who are gifted and talented. Teachers must skillfully match the needs of the pupil with the demands of the curriculum. Effective teaching of learners who are gifted and talented, as with other students, requires planning. It is a matter of constructing a “goodness of fit” between the individual’s interests and abilities and the specific content of the curriculum. As educators, our goal should be to develop each pupil’s strengths and abilities to the fullest degree.

Service Delivery Options

Pupils with gifts and talents require exposure to a curriculum that is rigorous and intellectually challenging. These students need instruction that is more complex and abstract than that provided to their typical peers (Burns, Purcell, & Hertberg, 2006). In many instances, this necessitates programming options outside of the general education classroom. The general education classroom, as traditionally organized in terms of curriculum and instruction, is seen as inadequate for meeting the needs of students who are gifted and talented (Clark, 2013). Silverman (1995b) believes that too many children who are gifted are "languishing in the regular classroom" (p. 220) because they are exposed to a curriculum that is too basic and that they mastered long ago. The general education classroom is, in many cases, an exceedingly restrictive placement for pupils with special talents and gifts, rather than a least restrictive setting (Gallagher, 2003). As a result, many schools provide a range or continuum of service delivery options designed to meet the unique needs of students with gifts and talents. Figure 15.6 portrays an array of programming alternatives appropriate for gifted learners from elementary to high school.

Gifted Resource Services

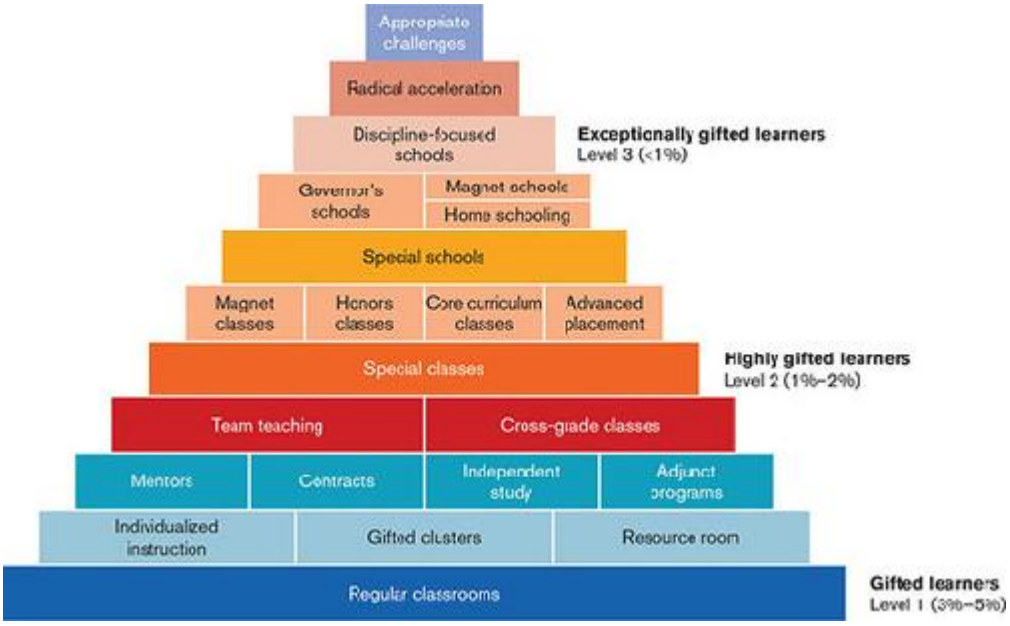
Children identified in any area of giftedness or talent need some time with others who share their interests and abilities. Working with other children of similar abilities takes away the feeling that many children who are gifted have—that they must hide their abilities in order to "fit in." Gifted resource services are typically provided through a resource room or pull-out program. Such a program can be the highlight of the students' day or week. It is important that classroom teachers see the time with the gifted resource teacher as an important service but not the only one needed by these children. Children who are gifted and talented are gifted all day, all week; they need ongoing instruction that will remove the learning ceiling and allow for continuous progress.

Acceleration

The child who is achieving above grade level and is ready to learn at increasingly advanced levels needs **acceleration**. Acceleration matches learning opportunities to the readiness of the student to learn at challenging levels. Researchers have found several beneficial outcomes for acceleration (Assouline, Colangelo, VanTassel-Baska, & Lupkowski-Shoplik, 2015; Colangelo, Assouline, & Gross, 2004; Plucker & Callhahan, 2017). Among these positive outcomes are greater academic achievement, increased interest in school, and enhanced self-concept. Contrary to the worries of some parents and administrators, when properly implemented, acceleration does not contribute to social and emotional problems.

acceleration An instructional strategy typically used with pupils who are gifted and talented; one of several approaches is placing students in a grade level beyond their chronological age.

Figure 15.6 Levels of Programming Options for Gifted Learners



Note: All programs for gifted learners, regardless of how they are structured, must provide differentiation, flexible grouping, continuous

progress, intellectual peer interaction, continuity, and teachers with specialized education.

Source: Adapted from B. Clark, *Growing Up Gifted*, 8th ed. (Upper Saddle River, NJ: Pearson Education, 2013), p. 289.

Acceleration may take several forms. Acceleration may focus on one content area, such as art or mathematics, or it may be a full-year acceleration known as grade skipping. It may also mean starting kindergarten at a younger age. Children who are reading when they come to school need to continue to improve their reading skills and to enhance their comprehension. Reading may be accelerated in the class with a cluster of children who are also early readers, or the child/children may join the first grade for the portion of the day devoted to reading. The skipping of a grade will usually be successful if the child wants to do it and if the receiving teacher wants the student to be successful. Acceleration includes taking high school classes while in middle school or taking College Board AP, International Baccalaureate, or dual-credit classes throughout high school. It may also involve taking advanced courses via distance learning as well as early entrance into college.

Besides acceleration, teachers have several other techniques at their disposal for modifying the curriculum in an effort to meet the needs of students with gifts and talents. Examples of these strategies can be found in Table 15.4. A variety of strategies and service options need to be in place in classrooms and schools to address the wide range of gifted learners' needs.

Independent Study

Independent study allows children of all ages to explore topics of interest and provides challenge if appropriate guidelines are established. These guidelines would include use of primary sources and resources that are matched to the child's level of reading and knowledge of the topic. This strategy enables the child to pose questions about topics of interest and to extend learning to related topics if he or she has demonstrated in a

preassessment that he or she has mastered the core content. Independent study is a positive option for children, including those who are gifted and talented, only if they are taught to work independently. That children are gifted does not mean that they have had the experiences that prepare them to take responsibility for their own learning. The skills needed to conduct primary research and to work independently must be taught. Once the young person refines these skills, independent study can provide alternative learning experiences that will allow the student to tap an area of interest and pursue it in depth.

Table 15.4 Strategies for Addressing the Needs of Advanced Learners

Table 15.4 Strategies for Addressing the Needs of Advanced Learners

Types	Focus of Opportunities	Examples
Enrichment	Opportunities to learn above and beyond what is usually provided at a particular grade level	• In-depth study • Junior Great Books • Competitions • Problem-solving programs • Interdisciplinary seminars • Project-based learning
Acceleration	Opportunities to learn at a pace that matches achievement and interest	• Subject acceleration • Early entrance (kindergarten or college) • Grade acceleration

Types	Focus of Opportunities	Examples
Differentiation	Opportunities to have curriculum matched to levels of interest and achievement	• Tiered assignments differentiated on content, process, and product
Grouping	Opportunities to learn with others at the same levels of interest and/or achievement	• Cluster grouping • Homogeneous classes (either pull-out or full-time) • Magnet schools with a focus on math, science, or the arts

Honors and Advanced Placement Courses

Honors and AP classes are appropriate for young people who are ready to learn at advanced levels. Honors courses are offered to middle and high school students who are ready to work hard on advanced content. College Board AP classes are available in more than thirty different academic areas.

Although the AP class is taken at the high school, a score of 3 or higher on the AP exam will earn three or more college credits at many institutions of higher education. Only local school policy restricts the grade at which a student is eligible to take AP classes.

Working with a mentor can open doors to opportunities.

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Mentorships

“Most mentorships involving the gifted and talented are one-on-one, the relationship most supportive for providing specialized, individual attention to a protégé’s development” (Clasen & Clasen, 2003, p. 255). The **mentor** and young person share an interest, making the relationship important to both parties. A mentor may be an older student or an adult with similar interests, a professional, or an artist.

> **mentor** The role fulfilled by an individual who is an expert in a particular field and who works with and guides a student in an area of mutual interest.

Mentorships are important for young people when pursuing passionate interests and exploring careers. Working with a mentor can open doors to opportunities. Some mentors will communicate via technology. Some may be in a university, a laboratory, or an office. Mentorships may be formal or informal. They may be set up for a specific period of time, or they may be ongoing. Successful mentorships allow serious learners opportunities to pursue ideas in depth or focus on a research interest. Callahan and Dickson (2014) believe that “a mentor can provide a model of adjustment, demonstrating pathways to negotiate complicated social interactions, showing the way to a gifted protégé, and providing assurances of the satisfaction one can receive emotionally and socially while pursuing high-level performance goals” (p. 418).

Making Inclusion Work
Individuals Who are Gifted and Talented
A school administrator asks: What does a school look like that meets the needs of all students, including children who are gifted?

Schools must meet the needs of all children, including children who are gifted. Having a truly inclusive school begins with an administrator who establishes a building-wide philosophy about the importance of learning and ensuring that each student is making continuous progress. Some administrators start the school day with a Morning Meeting. All students and staff meet in the gym, and the principal welcomes them with a question such as “Why did you come to school today?” The students reply with “To learn as much as we can!” The principal might then ask, “How do we show what we know?” and the children reply, “By doing quality work!” Often these Morning Meetings are led by students, and student leaders ask these questions once they have been modeled by the principal. Many individuals are recognized during the Morning Meeting. Several students are asked to stand because their artwork was selected for the community art show. The academic team is recognized for earning second place at the district competition the previous Saturday. Another pupil comes to the microphone and reads his essay that was selected as a regional winner in the Department of Transportation essay contest. A kindergarten class is asked to stand because they brought in the most cans of food for the Beta Club canned food drive. All of these students receive loud applause from their peers and teachers. What is the message that students receive from this recognition? This brief ten-minute meeting sets the tone for the school day. It is a reminder that learning is valued here, serving others is important, and individual interests and abilities are supported and celebrated.

The process of creating an inclusive school that can meet the needs of all students begins long before the opening day of school. Much time is devoted to selecting teachers who share the building-wide philosophy. Interview questions are carefully crafted to discern which candidates understand the importance of differentiation and are willing to work hard to differentiate in their classrooms. Teachers work in their Professional Learning Community meetings in May to determine which students should be in each cluster group because this is a strategy implemented at all grade levels. Several summer days are devoted to designing high-quality, intellectually demanding work for students that is connected to the broad-based theme that has been selected for the year. One year the theme was Change; another year Patterns was selected as the theme. Each year during the beginning-of-school faculty/staff meeting, the principal reminds everyone that all staff members are talent scouts and their role is to find and develop talent in their students. Teachers share examples of how they discovered talent in their students the previous year.

The librarian told about a quiet primary student, Avery, who watched him working on a Sudoku puzzle at his desk. Avery said she wished she could do that. The librarian found a simple Sudoku puzzle and was amazed to see Avery complete the puzzle correctly on her first try. Each time Avery came to the library she asked the librarian for another Sudoku

puzzle and each time he gave her a more challenging one. The librarian shared this with Avery's teacher and the gifted and talented resource teacher. The classroom teacher noted that Avery was a slightly below grade-level reader but did show strengths in math and always completed the extra challenge problems the teacher included at the end of math assignments for early finishers. Because the librarian was a talent scout and noted Avery's talent solving puzzles, the librarian, classroom teacher, and gifted and talented resource teacher worked together to gather more evidence of Avery's strengths in mathematics as compared to her same-age peers who were also from disadvantaged backgrounds. This resulted in Avery being included in the Primary Talent Pool. Being in the Primary Talent Pool meant that a variety of services would be provided to challenge her mathematical ability both in and outside of the classroom.

Teachers at this school firmly believe in the importance of preassessment to determine what students know and what they are ready to learn. Close examination of Avery's preassessment data in mathematics guides her teacher to place her in the cluster group working at the most advanced level in mathematics. Because Avery has attended three different schools during the last couple of years, there are some gaps in her math skills, so her teacher is aware she will need to provide some direct instruction for Avery in these areas. Avery will probably only need one or two repetitions in working with these skills before she is ready to move on with the rest of the students in this cluster group. While Avery's teacher is providing direct instruction to other cluster groups of students in her classroom, Avery joins students in her cluster group who are working at tiered learning centers. Avery likes working at the learning centers because she has a choice of activities, all related to the current unit on fractions. She selects an activity from her red color-coded folder and listens to the audio directions provided. She hears that she is to make two dozen chocolate chip cookies for a party, but the recipe is for one dozen cookies. She picks up the recipe for chocolate chip cookies in the folder and mentally calculates that she would need one cup of butter instead of a half-cup of butter and that she would need one and a half cups of sugar instead of three quarters of a cup. She decides to use the jar of sand to help her figure out how to double one eighth of a teaspoon of salt because she is not sure about doubling that fraction.

Later in the week, Avery goes down the hall to the gifted and talented resource room where she joins other primary students who show high potential in mathematics. They are exploring different number systems and learning how to convert from base ten to binary numbers, which Avery thought was really fun to do.

As the school year moves forward, teachers meet quarterly with the principal and building curriculum coordinator to make sure students are making appropriate progress toward meeting their learning goals. The principal provides time during the school day for these important meetings by scheduling extra library, music, physical education, and art for the students, so their teachers can meet together. Not only is the progress of students who are performing below grade level reviewed during these meetings, but the progress of gifted students is also examined. The teachers at this school want to make sure that *all* students are progressing at an appropriate rate, and they realize that students who are gifted will not continue to progress unless they receive advanced learning opportunities.

When parents of students with special needs come to school to discuss their child's individualized education program (IEP), the committee begins with a strong discussion of the student's strengths before discussing the student's disability. Since Isaac is in fifth grade, he was included in the meeting. His science teacher described him as one of her top science students and asked him to describe his science project. Isaac explained how he tested different bicycle helmets using watermelons enclosed in the helmets dropped from certain heights. His parents noted how passionate he was about his project because he was trying to convince his older brother to always wear his helmet when he rode his skateboard. They also expressed appreciation to his special education resource teacher for helping him research his topic and her assistance with word processing due to his severe disability in writing. After reviewing Isaac's progress on previous IEP goals, the team began to develop new goals. Because Isaac is a twice-exceptional student, goals are developed to address both his gifted and his special education needs. Isaac's gifted and talented resource teacher recommended goals to develop his strong science aptitude while his special education resource teacher presented goals and suggested accommodations to support his deficit in writing. Isaac became very excited when the gifted and talented resource teacher offered to find a high school student who was also passionate about science to mentor him.

Inclusive schools that meet the needs of all students recognize the importance of providing opportunities for students. School staff members get to know their students well and make sure students know about contests, clubs, and programs they would enjoy and in which they could develop their interests and strengths. A bulletin board placed on the wall near where students enter and exit the cafeteria provides information on various contests in writing, art, engineering, science, technology, and more. Related arts teachers collaborate to provide opportunities for students to participate in talent shows, plays, musicals, and arts festivals. Students who show strong aptitudes are encouraged to be in spelling or geography bees, join the chess or archery team, or develop their leadership skills through organizing service projects such as collecting items needed by the Humane Society or starting a recycling project for the school.

As you walk in the hallways and peek into classrooms, you see happy, engaged, focused students who are being academically challenged at their present level of learning. They are willing to work hard to learn as much as they can because they know that their talents and accomplishments are recognized and appreciated.

—Mary Evans, PhD

Former Principal of Cumberland Trace Elementary School Warren County, Kentucky

Program Developer, The Center for Gifted Studies Western Kentucky University, Bowling Green, Kentucky

Self-Contained Classes and Special Schools

Learning with others who share their interests and have similar abilities is essential for children and youth who are gifted and talented. A self-contained class of students who are intellectually gifted provides a learning environment in which many of them will thrive. Special schools are found in many urban school districts. These magnet programs for middle and high school students typically focus on math and science or the visual and performing arts. Several states sponsor residential high schools that are academies for mathematics and science and/or the visual and performing arts.

Summer and Saturday Programs

Summer and Saturday programs should challenge young people to learn at high levels, explore a variety of topics, and provide opportunities to get to know others who share their interests and have similar abilities. Such programs are offered at colleges and universities as well as by some school districts. “Even for academic domains, such as mathematics and science, opportunities outside of school, such as summer programs, are critical to supplement in-school learning” (Olszewski-Kubilius et al., 2018, p. 12). The academic content should take students beyond age-level learning experiences. National and state associations for gifted education can be a good source of information on summer and Saturday programs. The accompanying First Person feature offers one adolescent’s perspective on a summer camp experience.

First Person: Graham Summer Programming

After much counting down, the long awaited end of the school year is finally here. The anxiously awaited three months of relaxation have arrived. For most gifted kids, this is a time for complete shutdown and withdrawal. They could spend hours sitting in the mind-

numbing aura of a television or sleep for twelve hours a day. For some gifted kids, summer is recuperation from the harsh school year they just survived. But for others, myself included, summer is when the long anticipated summer camp takes place. Instead of shutting down and withdrawing, we are stimulated and placed in an environment where gifted kids have no problem "socializing." New information is absorbed, and the brain is kept awake and active. Things some gifted kids miss out on in the school year are presented in large quantities. Things like a caring mentor, an inspiring role model, or just a decent learning environment. Self-esteem skyrockets, and gifted kids begin to understand themselves more, by being around others like them. For me, summer programs were life changing. I gained assertiveness, self-confidence, and self-respect. I learned that I was not alone in the world. I learned that there were many other kids going through the same things I did each school day. I found out that I did, in fact, have the potential to do many things that I never knew I could, such as be popular among my peers, be accepted as who I am, and be known as something more than just "the smart kid."

—*Graham Oliver*

Ninth Grade

Paducah, Kentucky

Competitions

Competitions do not constitute gifted education, but they do provide motivation and challenge for some young people who are gifted and talented. Just as athletes have both individual and team sports, some competitions are for individuals, others for pairs of children or young people, and still others for teams. Information about a few competitions can be obtained from the websites listed at the end of the chapter, but there are many other competitions targeting a variety of interests and academic areas. *The Best Competitions for Talented Kids* (Karnes & Riley, 2013) provides important information about competitions.

Technology and Individuals Who Are Gifted and Talented

Technology is an increasingly important educational tool for children identified as gifted and talented, including students who are twice-exceptional. These pupils may benefit from the different types of assistive technology discussed in Chapter 5 (for example, text-to-speech, word prediction). Technology can also enhance the teaching and learning of students who are gifted and talented (Bouck & Hunley, 2014), with the Internet being just one example. Students who are gifted and talented can use the Internet to be producers of information rather than just consumers, such as authoring their own eBooks (Siegle, 2012). The Internet can also be used to provide online education; online education is often an appropriate option for individuals who are gifted and talented as it allows them to receive advanced content that is individually paced and student-centered (Thomson, 2010). Online learning creates enrichment opportunities for students who are gifted and talented outside of the typical K–12 curriculum. Social media is also having a tremendous impact on the world of gifted education, connecting not only students but also scholars, parents, educators, and even professional organizations. Finally, teachers of students who are gifted and talented can take advantage of augmented or virtual reality to provide educational experiences (Siegle, 2019). See the accompanying Spotlight on Technology feature for additional information.

Spotlight on Technology

Virtual reality allows students to be immersed within a setting through 3-D or 360-degree environments. Augmented reality allows students to experience an enhanced existing setting or environment through added computer-based elements. These two technology options extend learning opportunities and environments to students who are gifted and talented, allowing them to explore places in other countries or engage with experiments in a safe environment (Siegle, 2019).

Virtual Reality	Augmented Reality
• Google Cardboard (https://vr.google.com/cardboard/) • 360 Video (www.nytimes.com/video/360-video)	• HP Reveal (www.hpreveal.com) • Spark AR Studio (www.sparkar.com/ar-studio/)

Services for Young Children Who Are Gifted and Talented

The educational needs of young children with special gifts and talents have largely been overlooked (Piirto, 2007). Among the reasons are a lack of federal legislation guaranteeing these children an education, difficulties in identifying this unique population of learners, problems in constructing developmentally appropriate educational experiences, and an inconsistent commitment to serving the nation's brightest and most advanced preschoolers.

Early identification is essential to meeting the needs of these youngsters. Parents and other adult caregivers are astute at recognizing talents and gifts. More often than not, when parents suspect that their son or daughter is gifted, follow-up assessments support the parents' beliefs (Robinson, Shore, & Enersen, 2007). Table 15.5 lists some of the characteristics typical of young children who are talented.

Early identification is crucial for meeting the needs of young children who are gifted and talented.

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Despite the early evidence of gifts and talents, children are frequently not identified as gifted and talented until the third or fourth grade. In fact,

professionals disagree about the appropriateness of early identification of young children with gifts and talents. Critics of early programming argue that young children are rushed through their childhood. Supporters feel that there is a moral imperative to identify these youngsters and offer them challenging and stimulating opportunities to develop their unique abilities and gifts (Smutny, Walker, & Meckstroth, 2007). Without opportunities for continuous progress, young children who are not challenged learn to be underachievers, which is a difficult behavior to reverse. One common proposal is early admission to kindergarten or first grade. Howley, Howley, and Pendarvis (1995) consider this suggestion to be pedagogically sound and essential to the development of the child's gifts. When making such a decision, however, parents and educators need to carefully consider the individual's physical and emotional maturity so that an appropriate educational experience can be designed. Preschoolers who evidence gifts in one area, such as artistic talent, may perform on grade level in their verbal skills and social ability. Parents and professionals must be sensitive to this variability and be careful not to develop unrealistic expectations of advanced ability in all areas of development.

Table 15.5 Characteristics of Young Talented Children

Table 15.5 Characteristics of Young Talented Children

1. They are precocious, regardless of the talent area. Some may demonstrate precocious behaviors in several talent areas.

a. Verbally talented children acquire vocabulary and speak in sentences earlier than age-mates. They can break letter codes and make abstract verbal connections.

b. Mathematically talented children acquire numeration and number concepts sooner than age-mates.

c. Musically talented children may often sing on key, demonstrate an interest in the piano or other musical instruments, and stop what they are doing to listen to music.

d. Children talented in visual arts demonstrate artwork that is similar to that of older children. e. Kinesthetically or psychomotor-talented children demonstrate advanced motor ability. f. Spatially talented children may want to take things apart to see how they work, and demonstrate an understanding of mechanics that is advanced for their age. g. Children talented in the inter- and intrapersonal areas will demonstrate advanced understanding of social relationships, and demonstrate emotion about such things that age-mates will not perceive.
2. They have excellent memories.
3. They concentrate intensely on what interests them, for longer periods of time than age-mates.
4. Dyssynchrony [uneven development] is obvious, especially in high-IQ children.
5. Affective precocity may lead to the assumption of leadership roles and to preferring older companions for play.

Source: J. Piirto, *Talented Children and Adults*, 3rd ed. (Waco, TX: Prufrock Press, 2007), p. 225.

Early school experiences for academically talented pupils must be both enriching and accelerated. The primary concern, however, should always be the child, with his or her special abilities second (Piirto, 2007). Play, which is the “work” of a child, must be a critical component of any curriculum. The curriculum must be balanced and address all areas of development while reflecting the interests of the child. Finger painting and block building are just as important as counting and matching rhyming words.

Adolescents Who Are Gifted and Talented

Adolescence is a time of awkwardness for most young people, and adolescents who are gifted and talented are no exception. At a time in life when differences can be a liability, adolescents with gifts and talents need opportunities to be with others who share their interests and have similar abilities in order to know that their needs, interests, passions, and characteristics are “normal” for them. Csikszentmihalyi, Rathunde, and Whalen (1997) conducted a longitudinal study of 200 talented teenagers. They found some definite differences between talented teenagers and other adolescents. They describe the talented teens as having “personality attributes well suited to the difficult struggle of establishing their mastery over a domain: a desire to achieve, persistence, and a curiosity and openness to experience” (p. 82). Although we know that stereotyping adolescents who are gifted as misfits is not supported by research, “it must be understood that there are unique stresses and dynamic issues associated with a person’s giftedness” (Robinson et al., 2007, p. 15).

Early adolescence is a challenging time for all young people, and middle school students who are gifted often feel pressure to “fit in.” Middle schoolers who are gifted in any of the categories need challenging opportunities to make continuous progress in their talent areas and to share high-level learning experiences with others who are equally interested in this area. In reality, a lack of appropriately challenging instruction frequently leads to apathy and disengagement from the teaching and learning process (Tomlinson, 1994). Girls of middle school age frequently learn to compete “with boys” or “for boys”; these choices can profoundly affect their later choices. By the time young people enter high school, they set their course of study by the choices they make, selecting or avoiding the most rigorous courses. They also begin to consider and make career choices. Early adolescence is often a complicated and difficult time for students with gifts and talents.

One of the key questions confronting professionals is how best to meet the educational needs of young people who are gifted and talented. Educators disagree as to which pedagogical strategy is best. Among the instructional options available to adolescents and young adults are enrolling in AP classes, International Baccalaureate classes, high school honors classes, or dual-credit courses; seeking early admission to college; and attending a **magnet high school** (a secondary school with a particular focus such as science, mathematics, or the performing arts). Despite the fact that these services are offered in many but not all high schools, a fairly large portion of high school dropouts (estimated between 18 and 25 percent) are gifted (Rimm, Siegle, & Davis, 2018). We can only speculate that these students are unfulfilled and not academically challenged. Perhaps the lack of support services, the absence of a caring mentor, and the need to be accepted by peers interact to contribute to this phenomenon. For those individuals with gifts and talents who pursue postsecondary education, many colleges and universities offer a variety of honors classes and other opportunities for accelerated and in-depth study and investigation.

magnet high school A school with a strong instructional emphasis on a particular theme, such as performing arts or math and science; an option for secondary pupils who are gifted and talented.

Family Issues

A synthesis of research evidence paints a picture of some of the characteristics of families who have children who are gifted (see Table 15.6). Families exert a powerful influence on children, but especially a child who is gifted. If parents believe, Clark (2013) writes, that their "child has special ability, [they] will hold different expectations [and] allow more opportunities for the child to develop his or her ability" (p. 38). Family support is vital if ability is to translate into achievement and accomplishment.

Parents play a critical role in their son or daughter's classroom performance. In a classic study of 12,000 high school students over a four-year period, Steinberg (1996) found that parents and peers exerted the greatest influence on the young person's academic performance, greater than the teacher or the student's IQ score. Steinberg emphasizes the importance of parents setting academic excellence as a priority.

Providing opportunities beyond school to develop talents or to further study in areas of interest can be expensive but critical to the student's future. Parents must understand how important it is for their children to find intellectual peers. It is well worth the time and resources that it takes to have the child who is interested in the violin play with a youth orchestra or to have the young person who is interested in any number of academic pursuits drive to the nearest university to participate in a Saturday program. These experiences are often turning points that validate the need to work hard in order to achieve at high levels.

Parents may benefit from reading about children who are gifted and their needs. Parents can also benefit from joining state and national associations that advocate gifted education. They need to know their legal rights and the regulations affecting gifted education in their state and local school system (Karnes, Stephens, & McHard, 2008). Parents need information about due process procedures if they believe that their child is not being provided with

appropriate services and is not being challenged to learn at appropriately high levels.

Issues of Diversity

Children who are gifted and talented come from all socioeconomic, racial, and ethnic groups. A concern among educators is to be certain that children from *all* backgrounds are afforded quality educational opportunities that allow for gifts and talents to emerge and to ensure that students from diverse backgrounds receive appropriate services to develop their talents to optimal levels (Jolly & Hughes, 2015). A challenge to teachers is to be talent spotters and then talent developers so that all pupils are able to demonstrate their special talents and gifts. Despite the best efforts of professionals, three particular dimensions of diversity remain issues today: (1) gifted and talented students with disabilities, (2) girls who are gifted and talented, and (3) the assessment and identification of gifts and talents in pupils from culturally and linguistically diverse populations.

Table 15.6 Representative Characteristics of Families With a Child Who Is Gifted

Table 15.6 Representative Characteristics of Families With a Child Who Is Gifted

Typically the child who is gifted is the oldest child or the only child.
Parents are involved in school-related activities.
Parents ensure that their child is exposed to stimulating and enriching learning experiences and activities.
Parents tend to be older and highly educated.
Parents exhibit a strong work ethic and value and encourage high levels of achievement.
Family interactions and dynamics are supportive and nurturing.

Source: Adapted from B. Clark, *Growing Up Gifted*, 6th ed. (Upper Saddle River, NJ: Prentice Hall, 2002), p. 152.

Students With Gifts and Talents and Disabilities

Only recently have educators devoted attention to individuals with gifts and talents who also have a disability. All too often, the gifts and talents of these students are overlooked, and services are focused on the disability. It is tragic that people with disabilities are seldom thought of as possessing gifts and talents (Rimm et al., 2018)—most likely because of a lack of information, biases, and stereotypic expectations that prevent us from seeing their strengths. Yet think, for example, of the following eminent individuals who, although disabled, are truly gifted and talented in their respective fields of endeavor: Stephen Hawking, theoretical physicist (amyotrophic lateral sclerosis [ALS], also known as Lou Gehrig's disease); Franklin D. Roosevelt, U.S. president (polio); Helen Keller, author and social activist (dual sensory impairment); and Ray Charles, musician (visual impairment). In each of these instances, the individual's accomplishments overshadow his or her disability. Children who are gifted and have a disability require programming aimed at remediating the deficit(s) caused by the disability and accommodations that minimize its impact, as well as opportunities that nurture and develop their gifts and talents to the fullest potential (Clark, 2013).

Many times the gifts and talents of a pupil with a disability are overlooked.

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A student who is gifted may have one (or more) disabilities. These **twice-exceptional** learners constitute a group of children who are frequently misunderstood. A child who is identified as gifted may also have a learning disability, a behavior disorder, a sensory impairment, a physical disability, or attention deficit hyperactivity disorder (ADHD). The challenge confronting professionals is to make a diagnosis that is appropriate. This can be a difficult task because one exceptionality may mask another, or the characteristics of the two exceptionalities may be similar. For example, the pupil who has a learning disability but is intellectually gifted will likely perform at an average level, thereby camouflaging the need for gifted services as well as the need for services due to a learning disability. Another frequent problem is thinking that a child has ADHD when in actuality the child is gifted and exhibiting high energy and intense curiosity. “Gifted children with ADHD are usually labeled as underachieving or lazy long before they are ever labeled as [having] ADHD” (Flint, 2001, p. 65). Knowing the characteristics of children who are gifted and talented in any category is the key to recognizing behaviors that reveal gifts and talents in children with and without other exceptionalities.

twice-exceptional Students who are gifted and talented but also have a disability.

In many cases, students who are twice-exceptional are not receiving the services that would allow for the full expression of their potential. In too many instances, their disability masks their gifts and talents, or their giftedness allows them to compensate and achieve at or near grade level so their disability goes undetected; either way, these unique learners are not being appropriately served. Baldwin, Omdal, and Pereles (2015) argue persuasively that these pupils require interventions specially tailored to their needs.

Children who are twice-exceptional are sometimes referred to as *paradoxical learners.* Gifted students who are learning disabled, for instance, exhibit characteristics such as distractibility, inattentiveness, and inefficient learning strategies while, at the same time, presenting patterns typical of students who are gifted. How can teachers best meet the needs of these children? Do we teach to their learning disability, their giftedness, or

both? According to Baldwin et al. (2015), students who exhibit both gifts and a disability require an intervention program that nurtures their gifts and talents while accommodating particular learning needs. Baum, Renzulli, and Rizza (2015) also recommend teaching to the strengths and gifts while providing strategies that compensate for the disability. Effective instructional programming for these pupils thus requires a blending of instructional practices, such as cognitive training coupled with differentiated programming or curriculum compacting.

Nielsen and Higgins (2005) identify four key elements that must be present for successful programming of students who are twice-exceptional. According to these experts, these learners require

- a continuum of service delivery options ranging from the general education classroom to a self-contained classroom supported by related service professionals;
- a complex, integrated, and interdisciplinary curriculum because of their unique learning profiles;
- services and programs that address their social, emotional, and behavioral needs; and
- instruction that targets their gifts and talents while simultaneously providing individualized special education supports.

Girls Who Are Gifted and Talented

Although it may seem a bit unusual to include females who are gifted in a section devoted to diversity, there is ample evidence that girls who are gifted are an underrepresented population and an untapped national resource. This inequity appears to be embedded in a complex and interwoven web of educational, social, and personal barriers, including sex-role stereotyping, unequal educational opportunities, and personal as well as parental expectations (Plucker & Callahan, 2017; Reis & Gaesser, 2015). Collectively, these barriers frequently become obstacles to achievement and advancement. Some of the characteristics of gifted females are presented in Table 15.7.

Table 15.7 A Profile of Gifted Females

Table 15.7 A Profile of Gifted Females

Age Range	Attributes
Younger Gifted Girls	• Many gifted girls are superior physically, have more social knowledge, and are better adjusted than are average girls, although more highly gifted girls are not as likely to seem well adjusted. • Highly gifted girls are often second-born females. • Highly gifted girls have high academic achievement. • In their interests, gifted girls are more like gifted boys than they are like average girls. • Gifted girls are confident in their opinions and willing to argue for their point of view.

Age Range	Attributes
	• Gifted girls by age 10 express wishes and needs for self-esteem and are interested in fulfilling needs for self-esteem through school and club achievements, although highly gifted girls are often loners without much need for recognition. • Gifted girls are more strongly influenced by their mothers than are gifted boys. • Actual occupations of parents do not affect gifted girls' eventual career choices. • Gifted girls have high career goals, although highly gifted girls aspire to careers having moderate rather than high status.
Adolescent Females	• Gifted girls' IQ scores drop in adolescence, perhaps as they begin to perceive their own giftedness as undesirable. • Gifted girls are likely to continue to have higher academic achievement as measured by grade point average. • Gifted girls take less rigorous courses than gifted boys in high school. • Gifted girls maintain a high involvement in extracurricular and social activities during adolescence. • Highly gifted girls do very well academically in high school; however, they often do not receive recognition for their achievements.

Age Range	Attributes
	• Highly gifted girls attend less prestigious colleges than highly gifted boys, a choice that leads to lower-status careers.

Source: Adapted from B. Kerr, *Smart Girls Two*, Rev. ed. (Scottsdale, AZ: Gifted Psychology Press, Inc., 1997).

The education of girls with gifts and talents cannot be neglected. Giftedness in females must be nurtured. Reis and Gaesser (2015) offer the following recommendations for developing this talent pool in both girls and boys:

- Provide equal treatment in a nonstereotyped environment and, in particular, provide encouragement for advanced coursework.
- Reduce sexism and stereotyping in classrooms and establish equity in classroom interactions.
- Help gifted adolescents understand healthy competition.
- Group gifted students homogeneously in separate classes or in clusters within heterogeneous classrooms.
- Expose gifted adolescents to gifted adults who can act as role models through direct and curricular experiences—field trips, guest speakers, seminars, books, videotapes, articles, and movies.
- Provide educational interventions compatible with cognitive development and styles of learning (independent study projects, small-group learning opportunities, etc.).
- Use a variety of authentic assessment tools such as projects and learning centers in addition to tests. (pp. 108–109)

Silverman (1995a) suggests that to preserve giftedness in girls, schools should offer them intellectually challenging courses and assistance in selecting career paths commensurate with their abilities. Additionally, girls who are gifted may require supplementary educational experiences in order to reach their potential (Noble, Subotnik, & Arnold, 1999). Instruction may be necessary to develop assertiveness, instill confidence, and enhance self-esteem. Exposure to female mentors who can offer girls personal and professional advice along with work experience is another common

recommendation for fostering the talents and gifts of girls (Robinson et al., 2007). Table 15.8 offers additional suggestions and strategies for developing the gifts and talents of female students.

Students from culturally diverse backgrounds are significantly underrepresented in programs for children who are gifted and talented.

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Identifying and Serving Children From Diverse Backgrounds

One contemporary challenge in the field of gifted education, as in other areas of exceptionality, is that of identifying and serving children from culturally diverse backgrounds and from all socioeconomic groups. There is ample evidence that culturally diverse students are underrepresented in the pool of individuals identified as gifted (Ford, Young, Wright, & Goings, 2019; Pereira & de Oliveira, 2015; Plucker, Giancola, Healey, Arndt, & Wang, 2015; Plucker, Hardesty, & Burroughs, 2013; Siegle et al., 2016). African American pupils, for example, constitute approximately 19 percent of public school enrollment, but only about 10 percent of those in programs for the gifted and talented (Ford, 2013). The Javits legislation mentioned earlier in this chapter emphasizes that children with special gifts and talents can be found throughout society; our job as teachers is to find and provide services for these children. “Culturally diverse children,” Plummer (1995) writes, “have much talent, creativity, and intelligence. Manifestations of these characteristics may be different and thus require not only different tools for measuring these strengths, but also different eyes from which to see them” (p. 290).

Table 15.8 Recommendations for Developing the Gifts and Talents of Female Students

Table 15.8 Recommendations for Developing the Gifts and Talents of Female Students

Gifted and Talented Girls Should	Teachers Should	Parents, Teachers, and Counselors Should
• Have exposure to or personal contact with	• Provide equitable treatment in a nonstereotyped	• Form forces to advocate programming and

Gifted and Talented Girls Should	Teachers Should	Parents, Teachers, and Counselors Should
female role models and mentors who have successfully balanced career and family. • Participate in discussion groups and attend panel discussions in which gifted and talented girls and women discuss the external barriers they have encountered. • Pursue involvement in leadership roles and extracurricular activities. • Participate in sports, athletics, and multiple extracurricular activities in areas in which they have an interest.	environment and, in particular, provide encouragement. • Reduce sexism in classrooms and create an avenue for girls to report and discuss examples of stereotyping in schools. • Help creative, talented females appreciate and understand healthy competition. • Group gifted females homogeneously in math/science or within cluster groups of high-ability students in heterogeneous groups. • Encourage creativity in girls. • Use problem solving in assignments and reduce the use of timed tests and timed assignments within	equal opportunities and to investigate opportunities for talented, creative girls. • Spotlight achievements of talented females in a variety of different areas; encourage girls and young women to become involved in as many different types of activities, travel opportunities, and clubs as possible. • Encourage girls to take advanced courses in all areas, as well as courses in the arts, and reinforce successes in these and all areas of endeavor; ensure equal representation of girls in advanced classes.

Gifted and Talented Girls Should	Teachers Should	Parents, Teachers, and Counselors Should
• Discuss issues related to gender and success, such as family issues, in supportive settings with other talented girls. • Participate in career counseling at an early age and be exposed to a wide variety of career options and talented women who pursue challenging careers in all areas.	class periods; rather, provide options for untimed work within a reasonable time frame. • Expose girls to other creative, gifted females through direct and curricular experiences —field trips, guest speakers, seminars, role models, books, videotapes, articles, movies. • Provide educational interventions compatible with cognitive development and styles of learning (e.g., independent study projects, small-group learning opportunities) and use a variety of authentic assessment tools such as projects and learning centers instead of just using tests. • Establish equity in classroom interactions.	• Encourage relationships with other creative girls who want to achieve. • Maintain options for talented, creative girls in specific groups, such as self-contained classes, groups of girls within heterogeneous classes and in separate classes for gifted girls, science and math clubs, or support groups. • Consistently point out options for careers and encourage future choices but help girls focus on specific interests and planning for future academic choices, interests, and careers.

Gifted and Talented Girls Should	Teachers Should	Parents, Teachers, and Counselors Should
	• Provide multiple opportunities for creative expression in multiple modalities.	

Source: Adapted from S. Reis, "External Barriers Experienced by Gifted and Talented Girls and Women," *Gifted Child Today, 24*(4), 2001, pp. 33–34.

In a classic investigation, Frasier and her colleagues (1995) identified ten core attributes of giftedness in African American, Native American, and Hispanic children:

- Communication skills
- Humor
- Imagination/creativity
- Inquiry
- Insight
- Interests
- Memory
- Motivation
- Problem solving
- Reasoning

The process of identifying gifted children from culturally diverse backgrounds is sometimes described as finding "the light under the bushel basket" (Gallagher & Gallagher, 1994, p. 410). According to Gallagher and Gallagher (1994), intellectual giftedness often resides within the individual; however, adverse environmental factors, such as poverty or language differences, can mask that gift—like placing a basket over a light. The task of educators is to find strategies that remove the basket and let the light shine forth.

Several factors are thought to contribute to the underrepresentation of culturally diverse learners in programs for gifted and talented pupils. Commonly mentioned variables include the deleterious consequences of poverty, test bias, faulty identification policies, conflicting cultural values, teacher attitudes and expectations, and rigid definitions of giftedness (Ford, 1998; Rimm et al., 2018; Robinson et al., 2007). To combat these forces, recommendations have included the following:

- Culturally sensitive identification practices
- Early identification
- Establishing support services (career counseling, mentors, role models)
- Greater community and family involvement
- Multimodal assessment practices, including alternative (nontraditional) strategies (such as peer ratings, portfolios, teacher nominations, and checklists)

Portfolio assessment was thought to be one way of tapping into diverse talent areas. Its alignment with Gardner's concept of multiple intelligences makes it an especially attractive option for assessing giftedness. Unfortunately, this strategy, as well as other proposed solutions, has not solved the problem of underrepresentation.

Appropriate educational opportunities must be in place to develop the talents of children from low-income backgrounds; otherwise, millions of high-ability children from challenging socioeconomic backgrounds will fail to stay in the upper quartile of achievement (Wyner, Bridgeland, & DiIulio, 2007). Special care must be taken to nurture their talents, encourage them to achieve at high levels, and pursue higher education opportunities. Wyner et al. (2007) are optimistic because a large number of children who fall in the upper quartile are from low-income backgrounds; however, it is discouraging that

> there are far fewer lower-income students achieving at the highest levels than there should be, they disproportionately fall out of the high-achieving group during elementary and high school, they

> rarely rise into the ranks of high achievers during these periods, and perhaps most disturbingly, far too few ever graduate from college or go on to graduate school. (p. i)

Several reports highlight the need to be vigilant in looking for potential and ensuring that strategies are in place to develop talents to their highest levels. *Unlocking Emergent Talent* (Olszewski-Kubilius & Clarenbach, 2012) focused attention on the need to implement programming that will permit children from lower socioeconomic groups to thrive in school. Plucker, Burroughs, and Song (2010) offer data in their report, *Mind the (Other) Gap*, which reveal that too few students from gap groups (minority and lower socioeconomic groups) score at the advanced levels on the National Assessment of Educational Progress. Similarly, Plucker et al. (2013) provide additional data about the excellence gap in their report, *Talent on the Sidelines: Excellence Gaps and America's Persistent Talent Underclass*.

The challenge for educators in today's schools is to create learning environments that are intellectually stimulating and nurture the gifts and talents of *all* students so that it is just as attractive to be an outstanding student as it is to play on a championship team. See Table 15.9 for instructional suggestions designed to meet the unique needs of traditionally underrepresented groups of learners who are gifted and talented.

Table 15.9 Suggestions for Teaching Culturally Diverse Students Who Are Gifted

Table 15.9 Suggestions for Teaching Culturally Diverse Students Who Are Gifted

Cultural Background	Suggestions
African American Gifted Children	• Use small groups for instruction, building trust and belonging. • Provide structure by use of contracting, clear goals, and individualization.

Cultural Background	Suggestions
	• Provide mentors and role models. • Emphasize use of oral language, providing many opportunities for debate, discussion, and oral presentations. • Provide for visual learning experiences, manipulative materials, and active real-life experiences in learning.
Native American Gifted Children	• Use storytelling, metaphor, and myths as media for delivering information. • Develop personal and group goals relevant to those of the tribal community as well as the student. • Provide visual and spatial experience. • Teach from whole to details. • Explore and honor belief in collective tribal self as an alternative worldview. • Use intuitive ability in learning experiences.
Hispanic Gifted Children	• Use cooperative intellectual peer groups for learning and encouraging independent production. • Provide visual and kinesthetic learning experiences.

Cultural Background	Suggestions
	• Provide extensive experience with both English and Spanish. • Use successful Hispanic Americans as mentors. • Include the family as part of the educational team.

Source: Adapted from B. Clark, *Growing Up Gifted*, 8th ed. (Upper Saddle River, NJ: Pearson Education, 2013), pp. 218–221.

Trends, Issues, and Controversies

A plethora of issues and controversies confronts educators and other professionals concerned about the education of children and youth who are gifted and talented. We hope to shed some light on a few of these contemporary topics.

The Excellence Gap

Plucker et al. (2010) coined the term *excellence gap* to describe discrepancies in advanced achievement among children in poverty and those from other at-risk groups and their more advantaged peers. More recently, Plucker and his colleagues (Plucker et al., 2015; Plucker et al., 2013; Plucker & Peters, 2016) provided national as well as state data regarding the lack of attention to high-performing students from impoverished backgrounds.

While the achievement gap has been a guiding principle in the No Child Left Behind era, very little focus has been placed on the low percentages of children and young people from the same groups who are scoring at advanced levels. Plucker et al. (2015) made four recommendations as to how to remove the excellence gap:

1. Make high-performing students highly visible.
2. Remove barriers that prevent high-ability students from moving through coursework at a pace that matches their achievement level.
3. Ensure that all high-ability students have access to advanced educational services.
4. Hold local education agencies accountable for the performance of high-ability students from all economic backgrounds. (pp. 1–2)

The National Association for Gifted Children (2019) views closing the excellence gap as an equity and social justice issue as well as a workforce development issue that has national competitiveness and security implications.

Striving for World-Class Standards

In *National Excellence* (Ross, 1993), Secretary of Education Richard W. Riley stated that the United States was facing a "quiet crisis in how we educate top students. Youngsters with gifts and talents that range from mathematical to musical are still not challenged to work to their full potential. Our neglect of these students makes it impossible for Americans to compete in a global economy demanding their skills" (p. iii). More than two decades later, that "quiet crisis" continues.

PL 103–227, the Goals 2000: Educate America Act, predicted that students in the United States would be first in the world in mathematics and science by the year 2000. This goal of international eminence has not been attained. The need to focus on high standards and opportunities for children to learn at challenging levels continues. Top students are not served well when they score at the 99th percentile on standardized tests and earn all As on their report cards without being challenged. The situation is regrettable when a student scores at the 95th percentile in the United States on a standardized test but is at the 50th percentile in Japan (Ross, 1993).

Data from the Trends in International Mathematics and Science Study (National Center for Education Statistics, 2012) sound another alarm. This survey compared the mathematics and science knowledge skills of fourth and eighth graders in the United States with those of their peers from over fifty other countries. Findings from this survey indicate that only 13 percent of fourth graders and 7 percent of eighth graders performed at the advanced level in mathematics. Likewise, only 15 percent of fourth graders and 10 percent of eighth graders achieved at the highest level in science. These results raise serious concerns about the need for more rigorous curriculum and increasingly challenging learning opportunities.

Assumptions are often made that children who are gifted and talented will learn in spite of their circumstances. On the contrary, students who are gifted are less likely to make a year's achievement gain than are other students (Sanders, 1998). The No Child Left Behind legislation provides

little incentive for teachers to gear instruction to individuals who have already achieved proficiency (Neal & Schanzenbach, 2007). Because of the emphasis on proficiency, students who have already achieved proficiency or who are way beyond this level of accomplishment are not receiving the opportunities that allow them to make continuous progress. Unfortunately, the minimum competency requirements of No Child Left Behind have taken the instructional focus off of guiding our most talented students in recognizing, developing, and enriching their gifts. Because the student who is gifted can easily achieve minimum competency standards for grade level, it is imperative that educators look at these children in terms of a growth model. Every pupil, in every classroom, should be experiencing gains; whether those gains are toward minimum proficiency or talent development is irrelevant (S. Burkhardt, personal communication, February 16, 2007).

The goal of education for all students, including children who are gifted and talented, is to make continuous progress. Consequently, it is unacceptable for “proficiency” to place a lid on learning for any child who is already at proficiency or beyond. Academic growth is important for all children.

Equity and Excellence

The issue of equity and excellence has often been distorted into a question of equity versus excellence. Equity allows each child to have his or her needs addressed; it is not doing the same thing for all students on the same time schedule. Each child deserves quality educational opportunities that will allow for continuous progress in academic and talent areas. Excellence involves the pursuit of personal excellence. High standards are critical for all children; however, all children will not be served well unless each is challenged. What will be challenging for individual students depends on what each one already knows and is able to do. All children need to be accepted for who they are and must be genuinely challenged if they are to reach their personal goals.

The “Lake Wobegon phenomenon” describes a situation in which every child is above average. Such a situation denies some children the opportunity to reach a level of personal excellence. It is often said that we need to see that all children achieve at the same high levels. The same comment would never be made about athletics. All students need opportunities to develop their gifts and talents, just as athletes are encouraged to do, but they will achieve different levels of personal excellence when afforded the same opportunities.

Equity and excellence are equally important in a society that values moving forward in all fields of endeavor.

Full Inclusion

The general education classroom has become the “ideal” setting in the minds of many educators. For some students with exceptionalities, the general education classroom offers the best alternative; however, for children who are gifted and talented, the idea of full inclusion is often very restrictive. Results of a study by the National Research Center on the Gifted and Talented indicate that third- and fourth-grade teachers typically make only minor modifications in the regular curriculum to address the needs of students who are gifted (Archambault et al., 1993; Westburg & Daoust, 2003). Full inclusion offers challenges to teachers who understand that the needs of children who are gifted and talented cannot be met without differentiating the curriculum. For example, a fifth-grade teacher, in a class with a full range of learners, might have students reading from the first- to the twelfth-grade level. Such a classroom can present an overwhelming challenge to the educator who desires that each pupil make continuous progress.

For young people who are gifted and talented, the least restrictive alternative is often a self-contained class or magnet school. Fifteen states have established residential high schools for mathematics and science and/or the performing arts (Roberts, 2013). Urban school districts across the country have magnet schools with a focus on math and science, the health sciences, and/or the performing arts. Children who are gifted and talented need to be with others who think as they do and who are ready to accept and embrace the intellectual challenge. They also need teachers who are prepared to implement challenging curricula and who recognize the need to challenge even the most exceptional students.

Services for Gifted Students Instead of the Gifted Program

The trend to move to services for children who are gifted rather than “the” gifted program is in tune with methods of identification that emphasize multiple measures. Children with gifts and talents in science need challenging instruction to allow for the continuous development of their scientific knowledge, skills, and interests. Likewise, children who are gifted in leadership need appropriate opportunities to develop their leadership skills to a higher level, and artistically gifted children need instruction that will provide for the honing of their artistic talents—talents that may differentiate them from other children in their age bracket.

A gifted program is limited in its potential for addressing student needs. Matching services to need (for gifted students, the need is created by a strength) is key to developing children’s talents. One service may be similar to classes that have been known as the gifted program; however, it is only one service. Such a service offers advantages because the teacher has expertise and experience with students who have special talents, and the pupils benefit by associating with others who share their interests and have similar abilities. These classes offer opportunities to address the cognitive as well as the social/emotional needs of children who are gifted and talented.

Teachers who are specialists in specific content areas can offer other services. Who better to offer services to develop talent in mathematics than a teacher of math or in art than a teacher of art? The goal of each service is to focus on continuous progress, a concept that will allow children to be challenged beyond grade level. For all children, the learning ceiling must be removed, allowing them to learn what they are ready to learn, at a pace that will encourage them to maintain interest.

Talent Development

Children who are gifted and talented represent a relatively small part of a school's population, yet they constitute a group with special needs—needs created by their strengths. In spite of the fact that students who are gifted and talented do not appear needy, their needs are intense and must be addressed if they are to reach their potential.

The development of top talent is essential if our communities, states, nation, and world are to thrive. Talent does not develop in a vacuum (see Figure 15.7). Schools that develop top talent establish talent development and continuous progress as schoolwide goals. First, students need opportunities to discover interests or passions that can develop into top-level talents. Educators must provide children with numerous quality opportunities to develop these talents. They need opportunities to work with teachers and mentors in their talent areas in addition to opportunities to refine their skills and expand their content knowledge. Finally, young people need opportunities to produce knowledge through research and publications and to perform in competitions, contests, recitals, and exhibitions. Celebrating a wide range of accomplishments and talents is important throughout the talent development process. Examples of talent development opportunities are presented in Table 15.10.

Opportunities are not really opportunities until a person knows about them. The focus of schools must be on developing the gifts and talents of students from all socioeconomic levels and all racial and ethnic backgrounds, as well as students with a range of gifts and talents, including pupils with disabilities. Schools need to celebrate artistic and academic talents in the same ways that they celebrate athletic talent. As Madame Morrible says in the musical *Wicked*, "Never apologize for talent! Talent is a gift! And that is my special talent, encouraging talent" (Cote, 2005, p. 56). Students need individuals to encourage the development of their talents. Children who are gifted and talented need teachers and mentors in the home, school, and community who will provide opportunities that will ensure that they enjoy

learning on an ongoing basis and that they make continuous progress in their talent area. Children with gifts and talents will not make it on their own.

Figure 15.7 Essential Components of a Plan for Talent Development Schools

Quality and Quantity of Opportunities
Explore and find interests/passions
Learn basic skills and foundational knowledge
Refine skills and learn advanced content
Create/produce in talent area
Recognition and Celebration of Accomplishments

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Table 15.10 Essential Components of a Plan for Talent Development Schools

Table 15.10 Essential Components of a Plan for Talent Development Schools

Opportunities	Examples
Celebrate a wide range of accomplishments/talents	• Announcements and newsletter articles • Assemblies • Banners, trophies, Hall of Fame • Press releases

Opportunities	Examples
Explore and find interests/passions	• Resources—books, people, internet • Field trips to museums, labs, science centers, concert halls, universities • Experts to talk about or demonstrate a talent area • Classes in Saturday or summer programs, specialized camps
Learn basic skills and foundational knowledge in artistic, academic, and athletic areas	• Special classes • Visits to talk with and observe experts • Equipment (e.g., labs, instruments, computer programs) • Resources that interest and challenge • Lessons
Refine skills in talent areas as advanced content is learned	• Access to scientists, artists, and other mentors • Specialized equipment • Time with others who share interests and are equally advanced • Instruction with specific feedback • Independent study with mentor
Create/produce in talent area	• Competitions, contents, recitals, exhibits • Mentors focused on scholarly or artistic production • Time devoted to talent area

Opportunities	Examples
	• Performance for peers in talent area • Publications

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Chapter in Review

Defining Giftedness: Refining the Meaning (Learning Objective 15.1)

- Two national reports provide definitions of children who are gifted and talented; however, each state is responsible for establishing its own definition of giftedness. Generally speaking, definitions include high intellectual ability along with giftedness in specific academic areas, creativity, leadership, and/or the visual and performing arts.

Assessing Giftedness and Talent (Learning Objective 15.2)

- The assessment of gifts and talents necessitates multifactorial assessment of the student's strengths, using both formal and informal measures.
- Educators believe that approximately 3–5 percent of the school-age population is gifted. Some professionals estimate that 10–15 percent of school-age youth are gifted and talented.

Historical Perspectives on the Education of Students Who Are Gifted and Talented (Learning Objective 15.3)

- Historical events, influential individuals, and the political climate of the times help shape educational services for students with gifts and talents.

Etiology of Giftedness and Talent (Learning Objective 15.4)

- The etiology or causes of giftedness are both genetic and environmental. The complex interaction of genetic patterns and environmental stimulation produces an individual with the capacity to learn or perform at exceptionally high levels in one or more areas of accomplishment.

Characteristics of Individuals Who Are Gifted and Talented (Learning Objective 15.5)

- The characteristics of children who are gifted and talented vary tremendously across the many dimensions of giftedness.
- The degree and intensity of characteristics are often the keys to understanding gifted behavior. Seldom, if ever, do children who are gifted and talented exhibit all of the cognitive and social/emotional characteristics associated with this exceptionality.

Educational Considerations (Learning Objectives 15.6 and 15.7)

- The educational needs of pupils with gifts and talents are often best fulfilled via a variety of instructional strategies and in a variety of settings. Interventions must be planned to allow pupils to make continuous progress, even in areas in which they are advanced.
- Strategies to remove the learning ceiling include differentiating the curriculum and curriculum compacting.
- The curriculum must include learning experiences that combine complex content, high-level thinking and problem solving, and opportunities to think creatively. Other important accommodations addressing the needs of children who are gifted are cluster grouping, cooperative learning activities with academic peers, and problem-based learning.
- A continuum of services is vital to ensure the development of talent to high levels.
- Acceleration is an appropriate option for many gifted children. Independent study, mentors, honors classes, AP courses, and International Baccalaureate programs provide challenging learning experiences.
- Self-contained classrooms and special schools provide other venues for delivering services to gifted young people.
- Summer and Saturday programs are important options but should not be in lieu of services within the school setting.

Technology and Individuals Who Are Gifted and Talented (Learning Objective 15.8)

- Technology offers multiple possibilities for enhancing learning opportunities for students with gifts and talents.

Young Children and Adolescents Who Are Gifted and Talented (Learning Objective 15.9)

- The educational needs of young children with gifts and talents are frequently overlooked.
- Adolescence can be an especially difficult time for students who are gifted and talented. Choosing between making continuous progress in their talent areas and remaining popular with their peers is one area of potential conflict.

Issues of Diversity and Students With Gifts and Talents (Learning Objective 15.10)

- Children who are gifted and talented come from all socioeconomic, racial, and ethnic groups as well as all economic backgrounds.
- Professionals encounter three unique challenges when confronting issues of diversity: serving students with gifts and talents and a disability, meeting the needs of girls who are gifted and talented, and appropriately identifying and serving children with gifts and talents who happen to be culturally diverse.

Study Questions

1. How are children with gifts and talents identified in your area? Elsewhere in neighboring states?
2. In what ways is the assessment of giftedness an important yet difficult process?
3. How have society's view and understanding of children with gifts and talents changed over time?
4. The etiology of giftedness is seen as the commingling or interaction of what variables?
5. Identify five characteristics typically associated with individuals considered gifted and talented. What implications do these characteristics have for the individuals' teachers?
6. Describe the various delivery models that are frequently used to meet the cognitive and social/emotional needs of children who are gifted and talented.
7. Define the following terms*: curriculum differentiation, preassessment, curriculum compacting, flexible grouping, cluster grouping,* and *pacing*.
8. Distinguish between the concepts of acceleration and enrichment. How can they be used together?
9. List five early indicators of gifts and talents.
10. What challenges do families of children who are gifted and talented frequently encounter?
11. Why are some groups of children underrepresented in programming for students who are gifted and talented? What can be done to remedy this situation?
12. How can technology be used to enhance learning opportunities for students with gifts and talents?
13. Why do some educators believe that full inclusion is not the best option for students who are gifted and talented?

Key Terms

gifted and talented, 498
off-level testing, 505
creativity, 506
differentiation, 516
preassessment, 516
curriculum compacting, 517
flexible grouping, 517
cluster grouping, 518
tiered assignments, 518
problem-based learning, 518
acceleration, 521
mentor, 523
magnet high school, 528
twice-exceptional, 530

Learning Activities

1. Write a statement about your philosophy of learning that could guide your teaching of students with gifts and talents.
2. Volunteer to assist with an academic competition, a Saturday program, or a summer program for children and youth who are gifted and talented. Keep a journal of your experiences. How do the children compare with their typical age-mates? What strengths do you observe among the participants? How do the children relate to and interact with their coaches and teachers? What are the advantages and benefits of these activities?
3. Interview two individuals of similar chronological age who are considered gifted and talented. Ask these persons to define what it means to be gifted. Have them describe their educational experiences, career goals, likes and dislikes, social relationships (including family members), and other topics of interest to you. What similarities and differences do you observe between the two individuals? How do these persons differ from their typical age-mates?
4. Visit schools in your area that serve students with gifts and talents. What services are available for pupils who are gifted and talented? What differences do you observe between elementary and secondary programs? What instructional techniques do teachers use that are effective with students who are gifted and talented? How do the other pupils interact with their classmates who are gifted?

What is your overall impression of the services—what specific features stand out? How are the individual needs of the students being addressed or ignored?

5. Would you like to be a teacher of children with gifts and talents? Why or why not?
6. What is the definition of children who are gifted and talented in your state? How does it compare with the definitions presented in this chapter?
7. Locate information about advocacy organizations in your state. What professional development opportunities on gifted education are offered?

Organizations Concerned With Giftedness

The Association for the Gifted, Council for Exceptional Children

www.cectag.org

National Association for Gifted Children

www.nagc.org

Renzulli Center for Creativity, Gifted Education, and Talent Development

https://gifted.uconn.edu

Supporting Emotional Needs of the Gifted

www.sengifted.org

World Council for Gifted and Talented Children

www.world-gifted.org

Reflecting on Standards

The following exercises are designed to help you learn to apply the Council for Exceptional Children (CEC) standards to your teaching practice. Each of the reflection exercises that follow correlates with knowledge or a skill within the CEC standards. For the full text of each of the related CEC standards, please refer to the standards integration grid located in Appendix B.

Focus on Curricular Content Knowledge (CEC Initial Preparation Standard 3.2)

Reflect on what you have learned about students who are gifted and talented. If you had an individual who was gifted and talented in math, and performed well above the rest of your class, how might you use differentiated instruction to keep him or her challenged while still addressing the needs of the remainder of your pupils? What are some other instructional strategies you could incorporate in your class to meet his or her needs?

Focus on Learning Environments (CEC Initial Preparation Standard 2.1)

Reflect on what you have learned about the social/emotional needs of students who are gifted and talented. If you were to have a pupil in your class who was gifted and talented and often received instruction outside your classroom at a higher grade level, what difficulties might this individual have in developing social skills with his or her peers? How might you help encourage or facilitate social interactions when the student is in your classroom during the day?

Student Study Site

Sharpen your skills with SAGE edge at **edge.sagepub.com/gargiulo7e**. SAGE edge for students provides a personalized approach to help you accomplish your coursework goals in an easy-to-use learning environment.

Postscript

You may recall that in Chapter 1 you were introduced to some of the students in Daniel Thompson's fifth-grade class. Mr. Thompson's classroom was like most classrooms in the United States: The majority of the students were typical learners, but five individuals were thought to have special learning needs.

- Victoria, age 11, is a very popular student with a great personality who has been blind since birth.
- Miguel is very shy and timid and interacts minimally with his classmates. Miguel only recently moved into the community from his home in Mexico.
- Jerome is particularly disliked by his peers. He is verbally abusive, often has temper tantrums, and frequently fights with other children. Mr. Thompson suspects that he might be a member of a local gang.
- Stephanie endures friendly teasing from her classmates, who secretly admire her intellectual gifts and talents.
- Robert is an outstanding athlete. In the classroom, however, he asks silly questions, has difficulty following class rules, and occasionally makes animal noises, much to the displeasure of his classmates. Robert has cognitive delays as a result of an automobile accident.

Mr. Thompson wondered why these students were in his class and how he could help them. Hopefully, after studying the preceding chapters, listening to your instructor's presentations, and completing course assignments, along with critically reflecting on the content, you are now in a position to respond to the six questions originally posed in Chapter 1:

1. Why are these pupils in a general education classroom?
2. Will I have students like this in my class?
3. Are these children called disabled, exceptional, or handicapped?
4. What does *special education* mean?
5. How will I know if some of my students have special learning needs?

6. How can I help these pupils?

Teaching children and young adults with exceptionalities is a very challenging yet richly rewarding career. When you stand before your class as a dedicated, committed, and caring professional, you possess the power to make a difference in the lives of all your students. We congratulate you on choosing to become a member of a dynamic profession—teaching.

Good luck!

Appendix A Federal Definitions of Disabilities

Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. The term does not apply if a child's educational performance is adversely affected primarily because the child has an emotional disturbance as defined in this section.

A child who manifests the characteristics of autism after age 3 could be diagnosed as having autism if the criteria in the preceding paragraph are satisfied.

Deaf-blindness means concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational needs that they cannot be accommodated in special education programs solely for children with deafness or children with blindness.

Deafness means a hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification, that adversely affects a child's educational performance.

Emotional disturbance is defined as follows:

i. The term means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance:
   A. An inability to learn that cannot be explained by intellectual, sensory, or health factors.

B. An inability to build or maintain satisfactory interpersonal relationships with peers and teachers.
C. Inappropriate types of behavior or feelings under normal circumstances.
D. A general pervasive mood of unhappiness or depression.
E. A tendency to develop physical symptoms or fears associated with personal or school problems.

ii. The term includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance.

Hearing impairment means an impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance but that is not included under the definition of deafness in this section.

Intellectual disability means significantly subaverage general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period, that adversely affects a child's educational performance.

Multiple disabilities means concomitant impairments (such as intellectual disability–blindness, intellectual disability–orthopedic impairment), the combination of which causes such severe educational needs that they cannot be accommodated in special education programs solely for one of the impairments. The term does not include deaf-blindness.

Orthopedic impairment means a severe orthopedic impairment that adversely affects a child's educational performance. The term includes impairments caused by congenital anomaly (e.g., clubfoot, absence of some member), impairments caused by disease (e.g., poliomyelitis, bone tuberculosis), and impairments from other causes (e.g., cerebral palsy, amputations, and fractures or burns that cause contractures).

Other health impairment means having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that

i. is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, sickle cell anemia, and Tourette syndrome; and
ii. adversely affects a child's educational performance.

Specific learning disability is defined as follows:

i. *General.* The term means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.
ii. *Disorders not included.* The term does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of intellectual disability, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

Speech or language impairment means a communication disorder, such as stuttering, impaired articulation, a language impairment, or a voice impairment, that adversely affects a child's educational performance.

Traumatic brain injury means an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment or both, that adversely affects a child's educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual, and motor abilities; psychosocial behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or to brain injuries induced by birth trauma.

Visual impairment including blindness means an impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness.

Source: Individuals with Disabilities Education Improvement Act, 34 C.F.R. Part 300 § 300.8 (C). August 14, 2006.

Appendix B Professional Standards Council for Exceptional Children

Initial Level Special Educator Preparation Standards

Standard 1. Learner Development and Individual Learning Differences

Beginning special education professionals understand how exceptionalities may interact with development and learning and use this knowledge to provide meaningful and challenging learning experiences for individuals with exceptionalities.

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.1 Beginning special education professionals understand how language, culture, and family background influence the learning of individuals with exceptionalities.	•		•	•		•	•	•	•	•	•	•	•	•	•
1.2 Beginning special education professionals use		•			•	•	•	•	•	•	•	•	•	•	•

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
understanding of development and individual differences to respond to the needs of individuals with exceptionalities.															

Standard 2. Learning Environments

Beginning special education professionals create safe, inclusive, culturally responsive learning environments so that individuals with exceptionalities become active and effective learners and develop emotional well-being, positive social interactions, and self-determination.

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2.1 Beginning special education professionals through collaboration with general educators and other colleagues create safe, inclusive, culturally responsive learning environments to engage individuals with exceptionalities	•	•	•			•	•	•	•	•	•	•	•	•	•

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
in meaningful learning activities and social interactions.															
2.2 Beginning special education professionals use motivational and instructional interventions to teach individuals with exceptionalities how to adapt to different environments.						•	•	•	•	•	•	•	•	•	•
2.3 Beginning special education professionals know how to intervene									•						

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
safely and appropriately with individuals with exceptionalities in crisis.															

Standard 3. Curricular Content Knowledge

Beginning special education professionals use knowledge of general and specialized curricula to individualize learning for individuals with exceptionalities.

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
3.1 Beginning special education professionals understand the central concepts, structures of the discipline, and tools of inquiry of the content areas they teach, and can organize this knowledge, integrate cross-disciplinary skills, and develop meaningful learning progressions for					•	•	•	•	•	•	•	•	•	•	•

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
individuals with exceptionalities.															
3.2 Beginning special education professionals understand and use general and specialized content knowledge for teaching across curricular content areas to individualize learning for individuals with exceptionalities.	•	•			•	•	•	•	•	•	•	•	•	•	•
3.3 Beginning special education professionals modify general and specialized curricula to make them accessible to individuals with exceptionalities.	•				•	•	•	•	•	•	•	•	•	•	•

Standard 4. Assessment

Beginning special education professionals use multiple methods of assessment and data sources in making educational decisions.

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
4.1 Beginning special education professionals select and use technically sound formal and informal assessments that minimize bias.		•	•			•	•	•	•	•	•	•	•	•	•
4.2 Beginning special education professionals use knowledge of measurement principles and practices to interpret assessment results and		•	•			•	•	•	•	•	•	•	•	•	•

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
guide educational decisions for individuals with exceptionalities.															
4.3 Beginning special education professionals in collaboration with colleagues and families use multiple types of assessment information in making decisions about individuals with exceptionalities.	•	•	•			•	•	•	•	•	•	•	•	•	•
4.4 Beginning special education professionals engage individuals with exceptionalities to work toward quality learning and						•	•	•	•	•	•	•	•	•	•

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
performance and provide feedback to guide them.															

Standard 5. Instructional Planning and Strategies

Beginning special education professionals select, adapt, and use a repertoire of evidence-based instructional strategies to advance learning of individuals with exceptionalities.

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
5.1 Beginning special education professionals consider an individual's abilities, interests, learning environments, and cultural and linguistic factors in the selection, development, and adaptation of learning experiences for individuals with exceptionalities.	•	•	•			•	•	•	•	•	•	•	•	•	•

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
5.2 Beginning special education professionals use technologies to support instructional assessment, planning, and delivery for individuals with exceptionalities.					•	•	•	•	•	•	•	•	•	•	•
5.3 Beginning special education professionals are familiar with augmentative and alternative communication systems and a variety of assistive technologies to support the communication and learning of					•					•	•	•		•	

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
individuals with exceptionalities.															
5.4 Beginning special education professionals use strategies to enhance language development and communication skills of individuals with exceptionalities.			•								•			•	
5.5 Beginning special education professionals develop and implement a variety of education and transition plans for individuals with exceptionalities across a wide range of	•	•				•	•	•	•	•	•	•	•	•	•

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
settings and different learning experiences in collaboration with individuals, families, and teams.															
5.6 Beginning special education professionals teach to mastery and promote generalization of learning.															
5.7 Beginning special education professionals teach cross-disciplinary knowledge and skills such as critical thinking and problem solving to															•

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
individuals with exceptionalities.															

Standard 6. Professional Learning and Ethical Practice

Beginning special education professionals use foundational knowledge of the field and their professional Ethical Principles and Practice Standards to inform special education practice, to engage in lifelong learning, and to advance the profession.

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6.1 Beginning special education professionals use professional Ethical Principles and Practice Standards to guide their practice.	•	•													
6.2 Beginning special education professionals	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
understand how foundational knowledge and current issues influence professional practice.															
6.3 Beginning special education professionals understand that diversity is a part of families, cultures, and schools, and that complex human issues can interact with the delivery of special education services.		•	•	•		•	•	•	•	•	•	•	•	•	•

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6.4 Beginning special education professionals understand the significance of lifelong learning and participate in professional activities and learning communities.															
6.5 Beginning special education professionals advance the profession by engaging in activities such as advocacy and mentoring.															
6.6 Beginning															

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
special education professionals provide guidance and direction to paraeducators, tutors, and volunteers.															

Standard 7. Collaboration

Beginning special education professionals collaborate with families, other educators, related service providers, individuals with exceptionalities, and personnel from community agencies in culturally responsive ways to address the needs of individuals with exceptionalities across a range of learning environments.

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
7.1 Beginning special education professionals use the theory and elements of effective collaboration.	•	•		•											
7.2 Beginning special education professionals serve as a collaborative resource to colleagues.	•	•													

	Chapter														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
7.3 Beginning special education professionals use collaboration to promote the well-being of individuals with exceptionalities across a wide range of settings and collaborators.	•	•	•												

Source: Adapted from the *CEC Initial and Advanced Preparation Standards*. Available at https://www.cec.sped.org/Standards/Special-Educator-Professional-Preparation-Standards/CEC-Initial-and-Advanced-Preparation-Standards

Note: Standards became effective spring 2015.

Glossary

abandonment:
When an individual stops using an assistive technology device.

absence seizure:
A type of epileptic seizure lasting for a brief period of time whereby the individual loses consciousness and stops moving, formerly known as a *petit mal* seizure.

acceleration:
An instructional strategy typically used with pupils who are gifted and talented; one approach is placing students in a grade level beyond their chronological age.

acoustic immittance:
A technical term for measurements of middle ear function.

acquired immune deficiency syndrome (AIDS):
An infectious disease caused by HIV (human immunodeficiency virus) that destroys the immune system, leaving the person open to serious, life-threatening diseases.

active listening:
A type of listening in which a person is attentive to the feelings as well as the verbal message being communicated.

adaptability:
The ability of an individual or family to change in response to a crisis or stressful event.

adaptations:
Instructional accommodations that do not lower achievement expectations.

adaptive behavior:
The ability of an individual to meet the standards of personal independence as well as social responsibility appropriate for his or her chronological age and cultural group.

additions:
An articulation disorder wherein the speaker inserts extra sounds in spoken words (e.g., *footsball* for *football*).

adventitious (acquired) hearing loss:
Hearing loss that is acquired after birth, not inherited.

air-conduction audiometry:
A procedure for measuring hearing sensitivity at certain frequencies using pure tones presented to the listener through earphones or speakers.

albinism:
A hereditary condition with partial or total absence of pigment in the eye.

amniocentesis:
A diagnostic medical procedure performed to detect chromosomal and genetic abnormalities in a fetus.

anencephaly:
Cranial malformation; large part of the brain fails to develop.

anoxia:
Loss of or inadequate supply of oxygen associated with the birth process and frequently resulting in brain damage.

aphakia:
Absence of the lens, causing light sensitivity and loss of visual acuity.

aphasia:
Loss or impairment of language functions.

applied behavior analysis (ABA):
Application of learning principles derived from operant conditioning; used to increase or decrease specific behaviors.

apraxia of speech:
A speech and language disorder composed of both a speech disorder, caused by oral–motor difficulty, and a language disorder, characterized by the resultant limitations of expression.

articulation disorders:
Errors in the formation of individual sounds of speech.

Asperger syndrome:
A pervasive developmental disorder with severe and sustained impairments in social interaction and the development of restricted, repetitive patterns of behavior, interests, and activities; causes clinically significant impairments in other important areas of functioning.

assessment:
The process of gathering information and identifying a student's strengths and needs through a variety of instruments and products; data used in making decisions.

assistive listening devices:
Devices such as FM or sound field systems that improve the clarity of what is heard by an individual with hearing impairment by reducing background noise levels.

assistive technology device:
Any item, piece of equipment, or product system that increases, maintains, or improves functional capabilities of individuals with disabilities.

assistive technology service:
Any service that directly assists an individual in the selection, acquisition, or use of an assistive technology device.

assistive technology specialist:
A person trained to provide assistive technology services to individuals with disabilities.

asthma:
A chronic lung disease that causes restriction of a person's airways upon encountering a trigger, leading to shortness of breath, coughing, and wheezing.

astigmatism:
Distorted vision resulting from one or more surfaces of the cornea or lens being cylindrical, not spherical.

ataxic cerebral palsy (ataxia):
A type of cerebral palsy that is characterized by poor balance and equilibrium in addition to uncoordinated voluntary movement.

athetoid cerebral palsy:
A type of cerebral palsy in which movements are writhing, contorted, and purposeless.

atresia:
The absence or closure of the ear canal; can be congenital or acquired from injury or disease.

at risk:
An infant or child who has a high probability of exhibiting delays in development or developing a disability.

attention deficit hyperactivity disorder (ADHD):
A disorder characterized by symptoms of inattention, hyperactivity, and/or impulsivity. Frequently observed in individuals with learning disabilities.

audiogram:
A graphic representation of audiometric findings showing hearing thresholds as a function of frequency.

audiologist:

A professional who studies the science of hearing, including anatomy, function, and disorders, and provides education and treatment for those with hearing loss.

auditory evoked potentials:

Neural impulses produced from within the auditory system in response to stimulation of the auditory pathway and recorded as bioelectric events using a special computer.

auditory trainer:

A type of amplification system used by children with hearing impairments in place of their hearing aids in educational settings.

augmentative and alternative communication (AAC):

Symbols, aids, strategies, and techniques used as a supplement or alternative to oral language.

authentic assessment:

An evaluation of a student's ability by means of various work products, typically classroom assignments and other activities.

autism spectrum disorders:

A developmental disorder characterized by abnormal or impaired development in social interaction and communication and a markedly restricted repertoire of activity and interests.

autistic savant:

An individual with autism spectrum disorder who possesses special skills in areas such as mathematical calculations, memory feats, artistic and musical abilities, or reading.

autosomal dominant:

A genetic form of inheritance involving the non-sex-linked chromosomes in which the individual has one normal and one abnormal gene in a gene pair.

autosomal recessive:

A genetic form of inheritance involving the non-sex-linked chromosomes in which both genes of a gene pair must be affected for the trait to be expressed.

behavioral inhibition:

A characteristic common in persons with attention deficit hyperactivity disorder; impacts executive functions. Typically affects the ability to (1) withhold a planned response, (2) interrupt an ongoing response, and (3) protect an ongoing response from distractions.

behavior intervention plan:

A plan required by Public Law 105–17 for students with disabilities who exhibit problematic behavior; a proactive intervention approach that includes a functional behavioral assessment and the use of positive behavioral supports.

bilingual education:

An educational approach whereby students whose first language is not English are instructed primarily through their native language while developing competency and proficiency in English.

bilingual special education:

Strategy whereby a pupil's home language and culture are used along with English in an individually designed program of special instruction.

biologically at risk:

Young children with a history of pre-, peri-, or postnatal conditions and developmental events that heighten the potential for later atypical development.

birth trauma:

Difficulties associated with the delivery of the fetus.

bone-conduction audiometry:

A procedure for measuring hearing sensitivity at certain frequencies using pure tones presented through an oscillator placed on the forehead or mastoid bone of the listener. Sound is conducted to the inner ear through the bones of the skull.

Braille:
A communication system utilizing raised representation of written materials for tactual interpretation.

breech presentation:
Fetus exits the birth canal buttocks first rather than the more typical headfirst presentation.

cataracts:
Lenses that are opaque or cloudy due to trauma or age.

category:
Label assigned to individuals who share common characteristics and features.

central auditory nervous system:
Part of the hearing mechanism connecting the ear to the brain.

central auditory processing disorder (CAPD):
A problem in the processing of sound not attributed to hearing loss or intellectual capacity, involving cognitive and linguistic functions that directly affect receptive communication skills.

central hearing disorder:
Difficulty in the reception and interpretation of auditory information in the absence of a hearing loss.

cerebral palsy:
Several nonprogressive disorders of voluntary movement or posture that are caused by damage to the developing brain.

CHARGE association:

A rare genetic disorder resulting in deaf-blindness, a syndrome representing a cluster of physical anomalies present at birth.

child-find:
A function of each state, mandated by federal law, to locate and refer individuals who might require special education.

child maltreatment:
The neglect and/or physical, emotional, or sexual abuse of a child.

chorionic villus sampling (CVS):
A diagnostic medical procedure used to detect a variety of chromosomal abnormalities, usually conducted in the first trimester of pregnancy.

classroom arrangement:
The physical layout of the classroom and its décor; a proactive intervention technique designed to minimize disruptions while increasing pupil engagement.

cleft lip/cleft palate:
A congenital defect in which the upper lip is split or there is an opening in the roof of the mouth. Can often be surgically corrected. Hypernasality is common.

clinically derived classification system:
A system frequently used by mental health professionals to describe childhood, adolescent, and adult mental disorders.

cluster grouping:
The practice of placing five or more students who have similar needs and abilities with one teacher; promotes challenging cognitive development and positive social/emotional development.

cluttering:
A type of fluency disorder involving cognitive, linguistic, pragmatic, speech, and motor abilities.

cochlea:
The shell- or spiral-shaped structure in the inner ear that is responsible for hearing.

cochlear implant:
A surgically implanted device that allows individuals who are deaf to hear environmental sounds and understand speech.

cohesion:
Within a family, the degree of freedom and independence experienced by each member.

collaboration:
How individuals work together; a style of interaction among professionals.

coloboma:
A congenital condition that results in a teardrop shape of the pupil, iris, lens, retina, choroid, or optic nerve; may involve loss of field vision as well as problems with glare and depth perception.

communication:
The sharing or exchange of ideas, information, thoughts, and feelings. Does not necessarily require speech or language.

communication breakdown:
Misunderstanding as to what is being communicated, especially as it relates to individuals who are using some form of augmentative communication.

community-based instruction:
A strategy for teaching functional skills in the environment in which they would naturally occur rather than in simulated settings.

comorbidity:
The simultaneous existence of two or more conditions within the same person.

complementary and alternative medicine (CAM):
Treatment strategies and interventions for individuals with autism spectrum disorders that lack empirical support.

computer-assisted instruction (CAI):
The application of computer technology to deliver instruction.

conduct disorder:
A common psychiatric disorder among children and youth characterized by disruptive and aggressive behavior as well as other actions that violate societal rules.

conductive hearing loss:
The loss of sound sensitivity produced by abnormalities of the outer ear and/or middle ear.

cone cells:
Light-sensitive cells located mainly in the central area of the retina that define color.

conflict resolution:
A program designed to teach problem-solving skills along with strategies for negotiation and mediation.

consultation:
A focused problem-solving process in which one individual offers support and expertise to another person.

content enhancement:
An instructional aid designed to assist pupils in understanding major concepts, ideas, and vocabulary in a way that aids the acquisition, organization, and recall of material.

contractures:
Shortened muscles that result in the inability to fully extend a joint.

cooperative learning:

Instructional process whereby heterogeneous groups of students work together on an assignment.

cooperative teaching:
An instructional approach in which a special education teacher and a general educator teach together in a general education classroom to a heterogeneous group of students.

cornea:
The transparent outer portion of the eyeball that transmits light to the retina.

creativity:
A term with multiple meanings, generally referring to the production of novel or original ideas or products.

crisis prevention and management program:
A program in which techniques are taught to teachers on how to effectively and proactively deal with students' violent, aggressive, and/or self-injurious behaviors; a proactive preventative approach.

criterion-referenced assessment:
An assessment procedure in which a student's performance is compared to a particular level of mastery.

cultural pluralism:
The practice of appreciating and respecting ethnic and cultural differences.

cultural sensitivity:
A perspective adopted by professionals when working with families in which there is an awareness of and respect for the values, customs, and traditions of individuals and families.

culture:
The attitudes, values, belief systems, norms, and traditions shared by a particular group of people that collectively form their heritage.

curriculum-based measurement (CBM):
A formative assessment procedure for monitoring student progress in core academic subjects that reflect the local school curriculum.

curriculum compacting:
An instructional technique whereby the time spent on academic subjects is reduced so as to allow for enrichment activities or more in-depth learning about a specific topic; typically used with students who are gifted and talented.

cytomegalovirus (CMV):
A common virus that is part of the herpes group; if initial exposure occurs during pregnancy, severe damage to the fetus often results.

deaf:
Limited or absent hearing for ordinary purposes of daily living.

deaf-blindness:
Concomitant hearing and visual impairments.

Deaf culture:
Refers to individuals who are deaf who share similar values, attitudes, and practices and view American Sign Language as their natural language.

decibel (dB):
A unit of measure expressing the magnitude of a sound relative to the softest sound to which the normal human ear can respond.

deinstitutionalization:
A movement whereby persons with intellectual disabilities are relocated from large institutions into smaller, community-based, group living settings.

developmental delay:
A term defined by individual states referring to children ages 3 to 9 who perform significantly below developmental norms.

developmental language delay:
Slowness in the development of adequate vocabulary and grammar, or when a child's language age does not correspond to the child's chronological age.

differentiation:
A modification of the curriculum that enables students who are gifted to learn at a level appropriate to their ability and level of readiness.

diplegia:
Paralysis (or spasticity) of the legs and partly the arms.

Direct Instruction (DI):
A teacher-directed instructional technique used to produce gains in specific academic skills; emphasizes drill and practice along with immediate feedback and reward.

disability:
An inability or incapacity to perform a task or activity in a normative fashion.

discrepancy:
In regard to learning disabilities, the difference between the student's actual academic performance and his or her estimated ability.

distortions:
An articulation disorder in which a sound is said inaccurately, but resembles the intended sound (e.g., *shlip* for *sip*).

doctor's office effect:
The absence of symptoms of attention deficit hyperactivity disorder when the individual is evaluated in a structured environment such as a physician's office.

Down syndrome:
A chromosomal abnormality frequently resulting in intellectual disabilities with accompanying distinctive physical features.

Duchenne muscular dystrophy:

An inherited disease that is characterized by progressive muscle weakness from the degeneration of the muscle fiber.

dyslexia:

A severe reading disability; difficulty in understanding the relationship between sounds and letters.

early childhood special education:

Provision of customized services uniquely crafted to meet the individual needs of youngsters with disabilities ages 3 to 5.

early intervention:

The delivery of a coordinated and comprehensive package of specialized services to infants and toddlers with developmental delays or at-risk conditions and their families.

educable mentally retarded (EMR):

Classification of a person with mild intellectual disabilities who typically develops functional academic skills at a third- or fourth-grade level; IQ range generally between 50–55 and 70–75.

educational technology:

Technology used for educational purposes such as teaching and learning.

emotional disturbance:

A term often used when referring to individuals with emotional or behavioral disorders.

emotional or behavioral disorder:

A chronic condition characterized by behaviors that significantly differ from age norms and community standards to such a degree that educational performance is adversely affected.

encephalitis:

An inflammation of the brain; may cause damage to the central nervous system.

English learners (ELs):
Students whose primary language is not English and who have yet to achieve proficiency in English.

environmental control unit (ECU):
A device that allows the user to control electric appliances, telephones, and other items that use electric outlets from a distance.

environmentally at risk:
Youngsters who are biologically typical yet encounter life experiences or environmental circumstances that are so limiting that there is the possibility of future delayed development.

epilepsy:
A chronic condition in which the person has recurring seizures.

established risk:
Youngsters with a diagnosed medical disorder of known etiology and predictable prognosis or outcome.

e-text:
An electronic presentation of a text, also known as a digital text, that can be read on a computer.

ethnocentrism:
A perspective whereby a person views his or her cultural practices as correct and those of other groups as inferior, peculiar, or deviant.

etiology:
A term frequently used when describing the cause of a disability.

eugenics movement:
A campaign that sought to improve the quality of humankind through carefully controlled selective breeding.

evoked otoacoustic emissions:
Sounds produced by the inner ear in response to auditory stimulation and measured in the ear canal.

exceptional children:
Individuals who deviate from the norm to such an extent that special educational services are required.

exclusionary clause:
In regard to learning disabilities, the elimination of possible etiological factors to explain a pupil's difficulty in learning.

executive functions:
Internal regulation of one's behavior through control of emotions, inner speech, working memory, arousal levels, and motivation. Considered impaired in individuals with attention deficit hyperactivity disorder.

expressive language:
The formation and production of language, verbal and nonverbal, that is understood by and meaningful to others.

external locus of control:
The belief that the consequences or outcomes of a person's actions are the result of circumstances and situations beyond one's control rather than a result of one's own efforts.

externalizing disorder:
A behavior disorder characterized by aggressive, disruptive, acting-out behavior.

familiality study:
A method for assessing the degree to which a particular characteristic is inherited; the tendency for certain conditions to occur in a single family.

family-centered early intervention:

A philosophy of working with families that stresses family strengths and capabilities, the enhancement of skills, and the development of mutual partnerships between service providers and families.

family characteristics:
One dimension of a family systems model; aspects include family size and form, cultural background, and socioeconomic status, as well as the type and severity of the disability.

family-directed assessment:
A form of assessment, useful for infants, toddlers, and preschool-age youngsters, that focuses on information that families choose to provide regarding needs, concerns, resources, and priorities.

family functions:
Interrelated activities found within a family systems model; functions range from affection to economics to socialization, among other variables.

family interactions:
One aspect of a family systems model; refers to the relationships and interactions occurring among and between various family subsystems.

family life cycle:
Developmental changes occurring within a family over time.

family systems model:
A model that considers a family as an interrelated social system with unique characteristics and needs.

fetal alcohol spectrum disorder (FASD):
A term describing a group of conditions that can occur when a woman consumes alcohol while pregnant.

fetal alcohol syndrome (FAS):
Results from mother’s consumption of alcohol while pregnant; mild to moderate intellectual disability is common, along with physical

deformities. A leading cause of intellectual disability, although completely preventable.

field dependent/sensitive:
Students who approach learning intuitively rather than analytically and logically. These students tend to find success in cooperative learning situations and group work.

field independent:
Students who are detail oriented and analytically inclined. These students thrive in competitive settings where achievement and individual accomplishment are prized.

field loss:
A restriction to the visual field within the quadrant regions to the right, to the left, above, and below while gazing straight ahead.

fingerspelling:
A form of manual communication; different positions or movements of the fingers indicate letters of the alphabet.

flexible grouping:
The combining or grouping of students according to needs and abilities matched to their level of achievement.

fluency disorders:
Disorders that involve the flow of speech, influencing the rate and smoothness of an individual's speech.

FM system:
A wireless system that allows the transmission of a signal from the teacher wearing a microphone to the student wearing a receiver, increasing the volume of the teacher's voice over the volume level of classroom noise.

focal onset impaired awareness seizure:

A type of seizure that begins in one part of the brain whereby the person exhibits purposeless motor activity for a brief period of time; consciousness is impaired.

formal supports:
Assistance provided by government social programs, habilitation services, or advocacy groups.

fragile X syndrome:
A chromosomal abnormality leading to intellectual disabilities along with physical anomalies; believed to be the most common form of inherited intellectual disabilities.

frequency:
The number of vibrations per second of a given sound wave; typically measured as cycles per second (cps) or hertz (Hz).

full inclusion:
An interpretation of the principle of least restrictive environment advocating that all pupils with disabilities be educated in the general education classroom.

functional:
Etiologies of speech and language disorders that have no obvious physical basis (such as environmental stress).

functional academics:
The application of life skills as a means of teaching academic tasks; core of many instructional programs for students with mild or moderate intellectual disabilities.

functional behavioral assessment:
A behavioral strategy that seeks to determine the purpose or function that a particular behavior serves—what is occasioning and maintaining the behavior.

functional curriculum:

A curriculum that emphasizes practical life skills rather than academic skills.

functional vision:
How well students use the vision they have to complete a specific task.

functionally blind:
An educational description when the primary channel of learning is through tactile and auditory means.

galactosemia:
An inborn error of metabolism that makes infants unable to process galactose, resulting in a variety of physical problems in addition to intellectual disabilities; dietary intervention reduces potential for problems.

generalizing:
The ability to transfer previously learned knowledge or skills acquired in one setting to another set of circumstances or situation.

gifted and talented:
Persons who possess abilities and talents that can be demonstrated, or have the potential for being developed, at exceptionally high levels.

glaucoma:
A disease caused by increased pressure inside the aqueous portion of the eye with loss in the visual field.

Grade 1 Braille:
A beginning level of Braille in which a word is spelled out with a Braille letter corresponding to each printed letter.

Grade 2 Braille:
A more complex level of Braille in which contractions are used to represent parts of words or whole words.

handicap:

Difficulties imposed by the environment on a person with a disability.

handicapism:
The unequal and differential treatment accorded individuals with a disability.

hard of hearing:
Refers to a person who has a hearing loss but uses the auditory channel as the primary avenue for oral communication, with or without a hearing aid.

hearing impairment:
Less than normal hearing (either sensitivity or speech understanding) resulting from auditory disorder(s).

hearing sensitivity loss:
Poorer than normal auditory sensitivity for sounds; usually measured in decibels (dB) using pure tones.

hemiplegia:
Paralysis (or spasticity) on the left or right side of the body.

heritability study:
A method for assessing the degree to which a specific condition is inherited; a comparison of the prevalence of a characteristic in fraternal versus identical twins.

hertz (Hz):
A unit of measurement for sound frequency, expressed as cycles per second (cps).

hydrocephalus:
A condition in which the head is unusually large due to accumulation of excessive cerebrospinal fluid; brain damage is often minimized by surgically implanting a shunt to remove excess fluid.

hyperactive child syndrome:

A historical term commonly used to describe youngsters who exhibit impulsivity, inattention, and/or hyperactivity.

hypernasality:
A disorder of voice resonance, frequently observed as a result of cleft palate, in which too much air passes through the nasal cavities during the production of sounds, giving the speaker a distinctive nasal quality or “twang.”

hyperopia:
Change in the shape of the eye, which shortens the light ray path and causes farsightedness.

hyponasality:
A disorder of voice resonance in which there is a restricted flow of air through the nostrils, often resulting in the speaker’s sounding as if his or her nose is being held.

hypoxia:
Insufficient amount of oxygen to the brain; can result in brain damage.

incidence:
A rate of inception; number of new cases appearing in the population within a specific time period.

incus:
The second of the three middle ear bones for conducting sound to the inner ear, located between the malleus and the stapes; also called the anvil.

individualized education program (IEP):
A written detailed plan developed by a team for each pupil aged 3–21 who receives a special education; a management tool.

individualized family service plan (IFSP):
A written plan developed by a team that coordinates services for infants and toddlers and their families.

individualized transition plan (ITP):
An individualized plan with identified goals and objectives used to prepare the student in making the transition from high school to work (or college).

infant stimulation:
Programs for infants with disabilities or those experiencing delays; emphasis usually on achieving developmental or cognitive milestones.

inner ear:
The snail-shaped part of the ear (cochlea) containing the organs of hearing and balance.

instructional technology:
Any apparatus or device that supports the teaching–learning process, such as computers or televisions; a tool for the delivery of instruction.

interdisciplinary team:
A group of professionals from different disciplines who function as a team but work independently; recommendations, however, are the result of sharing information and joint planning.

interindividual differences:
Differences between two or more persons in a particular area.

internalizing disorder:
A behavior disorder characterized by anxiety, withdrawal, fearfulness, and other conditions reflecting an individual's internal state.

interpersonal problem solving:
Teaching pupils the cognitive skills needed to avoid and resolve interpersonal conflicts, peer pressure, and ways of coping with stress and their own feelings.

interpreter:
A professional who signs, gestures, and/or fingerspells a speaker's message as it is spoken to enable individuals with hearing impairments

to understand spoken language.

intervener:
A person with specialized training and skills in deaf-blindness who provides individualized assistance to students.

intraindividual differences:
Differences within the individual; unique patterns of strengths and needs.

iris:
The colored, circular part of the eye in front of the lens that controls the size of the pupil.

job coach:
An individual who supervises a person with a disability for all or part of the day to provide training, assistance, or support to maintain a job.

joint attention:
A social communication deficit common in individuals with autism spectrum disorders, the failure to respond to a gaze or pointing by another person.

juvenile ideopathic arthritis (JIA):
A chronic arthritic condition affecting the joints that occurs before 16 years of age.

language:
A code used to communicate ideas via a conventional system of arbitrary signals.

language sample:
An observational evaluation that includes observing the speech and language characteristics of a child actively communicating.

lead poisoning:

An environmental toxin used at one time in the manufacture of gasoline and paint; ingestion of lead can cause seizures, brain damage, and impaired central nervous system functioning.

learned helplessness:
A lack of persistence at tasks that can be mastered; a tendency to expect failure.

learning disability:
A disability in which there is a discrepancy between a person's ability and academic achievement; individual possesses average intelligence.

learning media:
The materials and methods a student uses in conjunction with the sensory channels in the process of learning.

learning strategies:
Instructional methodologies focusing on teaching students how to learn; designed to assist pupils in becoming more actively engaged and involved in their own learning.

least restrictive environment (LRE):
A relative concept individually determined for each student; principle that each pupil should be educated, to the maximum extent appropriate, with classmates who are typical.

legally blind:
A visual acuity of 20/200 or less in the better eye with correction or a visual field that is no greater than 20 degrees.

lens:
The transparent disc in the middle of the eye behind the pupil that brings rays of light into focus on the retina.

level of support:
A classification scheme for individuals with intellectual disabilities that is based on the type and extent of assistance required to function

in various areas.

limb deficiency:
Any number of skeletal abnormalities in which one limb, or more than one limb, is partially or totally missing.

literacy medium:
The student's preferred method of reading and writing.

low birth weight:
A term frequently used to describe babies who are born weighing less than 2,500 grams (5 lbs., 8 oz.).

low-incidence disability:
A special education category representative of students with disabilities that occur relatively infrequently.

low vision:
A visual impairment that interferes with the ability to perform daily activities and in which the primary channel of learning is through the use of prescription and nonprescription devices.

macroculture:
The shared or national culture of a society.

macula:
The area of best central vision located in the retina.

macular degeneration:
A common eye disease in adults, which may also occur in young people, involving damage to the central part of the retina cones, affecting central vision, light sensitivity, and color.

magnet high school:
A school with a strong instructional emphasis on a particular theme, such as performing arts or math and science; an option for secondary pupils who are gifted and talented.

mainstreaming:

An early term for the practice of integrating students with special needs into a general education classroom for all or part of the school day.

malleus:

The first and largest of the three middle ear bones for conducting sound to the inner ear. Also called the hammer, it is attached to the tympanic membrane.

manual communication:

Communication methods that utilize fingerspelling, signs, and gestures.

melting pot:

A metaphor describing the United States in the early decades of the twentieth century.

meningitis:

A viral or bacterial infection of the membranes covering the brain and spinal cord; associated with hearing loss and intellectual disabilities.

mentally ill:

A generic term often used by professionals outside of the field of special education to refer to individuals with emotional or behavioral disorders.

mentor:

The role fulfilled by an older individual who is an expert in a particular field and who works with and guides a student in an area of mutual interest.

metacognition:

The ability to evaluate and monitor one’s own performance.

microcephaly:

A condition in which the head is unusually small, leading to inadequate development of the brain and resulting in intellectual disabilities.

microcultures:
Distinct subcultures within a larger culture; these groups maintain their own distinct values, norms, folkways, and identification.

middle ear:
The air-filled space behind the eardrum that contains three tiny bones (ossicles) that carry sound to the inner ear.

minimal brain injury:
A once popular term referring to individuals who exhibit behavioral signs of brain injury (such as distractibility or impulsivity) but with no neurological evidence.

mixed cerebral palsy:
Cerebral palsy that consists of combinations of different types. A person who has both spastic and athetoid cerebral palsy would be considered to have mixed cerebral palsy.

mixed hearing loss:
Hearing loss resulting from both conductive and sensorineural hearing impairments.

mnemonic strategy:
A cognitive approach used to assist pupils in remembering material; the use of rhymes, pictures, acronyms, and similar aids to help in recall.

morphological disorder:
Difficulty learning and using morphological rules of language.

morphology:
Dictates how the smallest meaningful units of our language (morphemes) are combined to form words.

multicultural education:

An ambiguous concept that deals with issues of race, language, social class, and culture as well as disability and gender. Also viewed as an educational strategy wherein the cultural heritage of each pupil is valued.

multiculturalism:

Referring to more than one culture; acknowledges basic commonalities among groups of people while appreciating their differences.

multidisciplinary team:

A group of professionals from different disciplines who function as a team but perform their roles independent of one another.

multimodal interventions:

The use of concurrent treatment approaches with students who exhibit attention deficit hyperactivity disorder.

multiple disabilities:

Concomitant impairments that result in such severe educational needs that a student cannot be accommodated in a special education program solely on the basis of one of the impairments.

multiple intelligences:

An alternative perspective on intelligence suggesting that there are many different kinds of intelligence.

myopia:

Elongation of the eye that causes extreme nearsightedness and decreased visual acuity.

natural supports:

Assistance rendered by family members, friends, teachers, and coworkers.

neuromotor impairments:

Several types of impairments involving abnormality of, or damage to, the brain, spinal cord, or nerves that send impulses to the muscles of the body.

noncategorical:
Programs developed based on student needs and common instructional requirements rather than on disability.

nondiscriminatory testing:
Federal mandate that assessments be conducted in a culturally responsive fashion.

normalization:
A principle advocating that individuals with disabilities should be integrated, to the maximum extent possible, into all aspects of everyday living.

norm-referenced assessment:
A standardized test on which a pupil's performance is compared to that of his or her peers.

off-level testing:
The use of assessment instruments designed for older students when evaluating the academic ability of a child thought to be gifted.

omissions:
An articulation disorder that occurs when a sound is not pronounced in a word (e.g., *han* for *hand*).

optic nerve:
The nerve at the posterior of the eye that carries messages from the retina to the brain.

optic nerve atrophy:
Degeneration of the optic nerve, which may be congenital or hereditary, causing loss of central vision, distorted color vision, and reduced visual acuity.

oral approaches:

Methods of instruction for children with hearing impairments that emphasize spoken language skills. Methodology attempts to use the child's residual hearing and employs auditory training and speechreading.

oral interpreter:

A professional who silently repeats a speaker's message as it is spoken so that a person who is hearing impaired can lipread the message.

orbit:

A protective cone-shaped cavity in the skull, sometimes called the socket.

organ of Corti:

An organ of hearing found within the cochlea.

organic:

Etiologies of speech and language disorders that can be linked to a physiological deficit (such as cleft palate).

orientation and mobility (O&M):

Systematic techniques to plan routes and move from place to place for persons with visual impairments.

orthopedic impairment:

A physical disability that occurs from congenital anomalies, diseases, or other causes that adversely affect a child's educational performance.

orthotics:

Various braces or splints that are used to help maintain alignment and decrease the development of contractures.

ossicular chain:

Three bones in the middle ear (malleus, incus, and stapes) that connect the eardrum to the inner ear and help to amplify sounds.

other health impairment:
A chronic or acute health problem that results in limited strength, vitality, or alertness and adversely affects educational performance.

otitis media:
Infection of the middle ear space, causing conductive hearing loss.

outer-directedness:
A condition characterized by a loss of confidence in one's own capabilities and a reliance on others for cues and guidance.

outer ear:
The most visible (external) part of the ear, useful in funneling sound to the ear canal and in localizing the source of sound.

oval window:
The link between the inner ear and the middle ear.

overrepresentation:
A situation in which a greater number of students from minority groups are placed in special education programs than would be expected based on the proportion of pupils in the general school population.

paraplegia:
Paralysis (or spasticity) of the legs.

partial fetal alcohol syndrome (pFAS):
A less severe and subtler form of fetal alcohol syndrome; caused by drinking alcohol while pregnant.

perinatal:
Events occurring at or immediately after birth.

person-centered planning:
Useful when developing a student's individualized education program; creates a vision for the pupil's future based on an analysis of his or her

strengths, needs, and preferences.

phenylketonuria (PKU):
An inherited metabolic disorder resulting from the inability of the body to convert phenylalanine to tyrosine; can be detected at birth and controlled by diet; left untreated, consequences are often severe.

phonation:
Includes speech factors of pitch, loudness, and quality.

phoneme:
Smallest unit of sound found in spoken language.

phonemic awareness:
The ability to recognize that words consist of different sounds or phonemes.

phonological awareness:
Possible explanation for the reading problems of some students with learning disabilities; difficulty in recognizing the correspondence between specific sounds and certain letters that make up words.

phonological disorder:
Abnormal organization of the phonological system resulting in a significant deficit in speech production or perception.

phonology:
The sound system of a language, including the use of sounds to create meaningful syllables and words.

photophobic:
Sensitive to light.

physical restraint:
The restriction of a student's freedom of movement, physical activity, or access to his or her body.

play audiometry:
A method for measuring hearing sensitivity in young children by rewarding correct responses; turning the evaluation situation into a game in order to maintain interest and cooperation.

portfolio assessment:
A type of authentic assessment; samples of different work products gathered over time and across curriculum areas are evaluated.

positive behavioral support:
An alternative approach to punishment; a schoolwide, proactive way of addressing problematic behaviors.

postlingual:
Referring to the period of time after a child has developed language.

postnatal:
Events occurring after birth.

pragmatic difficulties:
Problems understanding and using language in different social contexts.

pragmatics:
A sociolinguistic system involving the use of communication skills in social contexts.

preassessment:
An assessment of a pupil's previously acquired knowledge and skills; informing the teacher of where to start to provide differentiated learning experiences.

precipitous birth:
Birth that occurs in less than two hours.

prelingual:

Referring to the period of time prior to a child's development of language.

prelinguistic:
Communicative behaviors used by children before the formation of formal speech and language characteristics.

premature births:
Babies born prior to thirty-seven weeks of gestation age.

prenatal:
Events occurring before birth.

prereferral intervention:
Instructional or behavioral strategies introduced by a general educator to assist students experiencing difficulty; designed to minimize inappropriate referrals for special education.

prevalence:
The total number of individuals in a given category during a particular period of time.

primary literacy medium:
An individual's most frequently used method of reading and writing.

primary prevention:
Activities aimed at eliminating a problem or condition prior to its onset; may also refer to reducing the number of new instances of problematic behavior.

print disabilities:
Disabilities that prevent an individual from gaining information from printed material; require the use of alternative methods to access the material.

problem-based learning:

An instructional approach in which authentic problems having multiple solutions are addressed through the application of critical thinking skills.

progress monitoring:
The frequent and systematic assessment of a pupil's academic progress.

proximity and movement management:
A classroom management strategy focusing on the effective use of classroom space and the arrangement of the physical environment as a means of minimizing disruptive behavior.

psychogenic theories:
Theories embracing the Freudian perspective that if basic psychological bonds are not established between the parent and the child, the child will not be able to establish relationships with others and will fail to progress. Individual psychotherapy is recommended as the treatment of choice.

psychostimulants:
Medications typically prescribed for persons with attention deficit hyperactivity disorder. These drugs activate or enhance specific aspects of neurological functioning that in turn affect executive functions.

pupil:
The circular opening at the center of the iris that controls the amount of light allowed into the eye.

pure-tone audiometry:
A procedure for measuring hearing sensitivity at certain frequencies using tones that are presented at various intensities.

quadriplegia:
Paralysis (or spasticity) of both legs and both arms.

rebound effect:
The behavioral deterioration sometimes observed in persons with attention deficit hyperactivity disorder as the effect of psychostimulant medication gradually wears off.

receptive language:
The ability to understand what is meant by spoken communication.

referral:
A formal request by a teacher or parent that a student be evaluated for special education services.

regular education initiative (REI):
An approach that advocates that general educators assume greater responsibility for the education of students with disabilities.

related services:
Services defined by federal law whose purpose is to assist a student with exceptionalities in deriving benefit from a special education.

reliable means of response:
A consistent, reliable way of answering questions.

residual vision:
An individual's usable vision.

resonance:
Sound quality of speech.

respite care:
Temporary or occasional care of an individual with disabilities by nonfamily members.

response to intervention (RTI):
A strategy used for determining whether a pupil has a learning disability. The student is exposed to increasing levels of validated instructional intervention; responsiveness to the instruction is assessed;

a lack of adequate progress typically leads to a referral for possible special education services.

retina:
The inner layer of the eye containing light-sensitive cells that connect with the brain through the optic nerve.

retinitis pigmentosa:
Pigmentation of the retina that can result in night blindness, photophobia, and eventual loss of vision in various parts of the periphery.

retinopathy of prematurity (ROP):
An interruption in the vascular system of the eye, due to premature birth, in which veins and arteries begin to grow in an unorganized manner and cause bundles that pull together and detach the retina, resulting in loss of peripheral vision or total blindness.

Rh incompatibility:
A condition that results when a woman who is Rh negative carries an Rh-positive fetus. Mother's body will produce antibodies that can affect babies resulting from future pregnancies; often leads to intellectual disabilities and other impairments if mother does not receive an injection of Rho immune globulin.

rod cells:
Light-sensitive cells located mainly in the peripheral areas of the retina that are responsible for shape and motion, function best in reduced illumination, and are not responsive to color.

rubella:
A viral disease also known as German measles; contact in first trimester of pregnancy often results in a variety of significant impairments.

scaffolding:

A cognitive teaching strategy in which the teacher provides temporary support to a student who is learning a new task; supports are gradually removed as the pupil becomes increasingly competent with the activity.

seclusion:
The involuntary confinement of a student to a room or area from which he or she is physically prevented from leaving.

secondary prevention:
Efforts focusing on minimizing or eliminating potential risk factors in regard to persons with emotional or behavioral disorders; refers to minimizing the possibility that maladaptive or inappropriate behaviors will occur.

seizure:
A sudden, temporary change in the normal functioning of the brain's electrical system due to excessive, uncontrolled electrical activity in the brain.

self-advocacy:
Speaking out for one's personal preferences; protecting one's own interests.

self-contained:
A separate classroom for children with disabilities, usually found in a public school.

self-determination:
Self-advocacy efforts by an individual with a disability; expression of desire to live one's life according to one's own wishes; assuming personal control over one's life.

self-instruction:
A cognitive strategy for changing behavior; pupils initially talk to themselves out loud while performing a task and verbally reward themselves for success.

self-monitoring strategy:
A behavioral self-control strategy; pupils compare their performance to a criterion, record their efforts, and obtain reinforcement if appropriate.

self-regulation:
The ability of an individual to manage or govern his or her own behavior.

semantic disorder:
Language difficulty associated with poor vocabulary development, inappropriate use of word meanings, and/or inability to comprehend word meanings.

semantics:
A psycholinguistic system that involves word meanings and word relationships and their use in communication.

sensorineural hearing loss:
The loss of sound sensitivity produced by abnormalities of the inner ear or nerve pathways beyond the inner ear to the brain.

sheltered workshop:
A structured work environment for persons with disabilities in which vocational and social skills are often the focus of attention; may be a temporary or permanent placement.

short-term memory:
The recall of information after a brief period of time.

Snellen chart:
An eye chart of clinical measurement of the true amount of distance vision an individual has under certain conditions.

social skills training:
Using direct instruction to teach students appropriate social behaviors; the goal is to increase individuals' social competency and acceptance.

socially maladjusted:
A term used to describe individuals whose social behaviors are atypical and who are often regarded as chronic social offenders.

sound field system:
A system to assist students with hearing impairments in which the teacher wears a microphone that transmits a signal to a speaker strategically placed in the classroom rather than to a body-worn receiver.

spastic cerebral palsy:
A type of cerebral palsy in which the person has very tight muscles occurring in one or more muscle groups, resulting in stiff, uncoordinated movements.

special education:
Specially designed instruction to meet the unique needs of an individual recognized as exceptional.

specialized instructional strategies:
Teaching techniques specifically designed for a particular special education population to assist with learning specific material.

speech:
The expression of language via sounds; the oral modality for language.

speech audiometry:
A set of procedures for measuring auditory perception of speech, including syllables, words, and sentences.

speech-generating device (SGD):
A high-tech augmentative or alternative communication device capable of generating speech.

speech recognition threshold (SRT):
A measure of threshold sensitivity for speech. The SRT represents the softest sound level at which a listener can identify the stimuli 50

percent of the time.

spina bifida:
Failure of the neural tube to completely close during fetal development. In its most severe form, the baby is born with a sac on his or her back containing part of the spinal cord.

spread:
The practice of spreading inferences to other unrelated aspects of a disability, often resulting in stereotyping.

stage theory:
A hypothesized pattern of parents' reaction to the news that their child has a disability.

standard deviation (SD):
A descriptive statistic that expresses the variability and distribution of a set of scores relative to the mean.

standard precautions:
Guidelines for the prevention of spreading infectious illnesses.

stapes:
The third of the middle ear bones for conducting sound to the inner ear. It resembles a stirrup in shape and is sometimes called the stirrup. It is the smallest bone in the body.

statistically derived classification system:
A system developed to analyze patterns of behaviors based on statistical procedures that characterize children and youth with emotional or behavioral disorders.

stereotypic behavior:
A variety of repetitive bodily movements frequently exhibited by individuals with a visual impairment.

stigmatization:

To experience undesired negative attention due to using assistive technology.

Strauss syndrome:
A historical term applied to individuals with intellectual disabilities who exhibit high levels of distractibility and hyperactivity.

strength-based assessment:
An assessment model that looks at an individual's strengths, abilities, and accomplishments rather than focusing on his or her deficits.

stuttering:
A type of fluency disorder in which word sounds are repeated.

substitutions:
An articulation disorder that occurs when one sound is substituted for another in the pronunciation of a word (e.g., *wabbit* for *rabbit*).

summary of performance (SOP):
Required by federal regulation for each student who exits secondary school, a summary of the individual's academic achievement and functional performance with recommendations for supports and services aimed at assisting the adolescent in achieving his or her transition goals.

supported competitive employment:
At a work site for typical workers, individuals with disabilities are employed and work alongside their typical peers but receive ongoing assistance from a job coach.

supported e-text:
An e-text that allows for content to be presented in multiple modalities while providing additional supports.

syntactical deficit:
Difficulty acquiring the rules that control word order and other aspects of grammar.

syntax:

A series of linguistic rules that determine word order and combinations to form sentences and how such word order is used in the communication process.

syphilis:

A venereal disease; infection of the mother in the last trimester of pregnancy can cause intellectual disabilities in the child.

task analysis:

An instructional methodology whereby complex tasks are analyzed and broken down into sequential component parts; each part is taught separately and then as a whole.

telecommunication device for the deaf (TDD):

An instrument for sending typewritten messages over telephone lines to be received by a person who is deaf or severely hearing impaired as a printed message. Sometimes called TT, TTY, or TTD.

teratogens:

Infections, drugs, chemicals, or environmental agents that can produce fetal abnormalities.

tertiary prevention:

Efforts that attempt to limit the adverse consequences of an existing problem while maximizing a person's potential; in regard to persons with emotional or behavioral disorders, refers to an intense level of intervention using strategies and supports designed for individuals with chronic and intense behavior problems.

theory of mind:

A hypothesis that attempts to explain the inability of the individual with autism spectrum disorder to realize that other people have their own unique point of view about the world—different thoughts, plans, and perspectives from their own.

therapeutic abortion:

Elective termination of a pregnancy due to the presence of a birth defect.

tiered assignments:
An instructional strategy that allows the teacher to offer variations of the same lesson to students with differing levels of ability in order to provide appropriate levels of challenge.

time management:
A proactive intervention strategy that attempts to maximize student engagement time and appropriately schedule class activities in addition to instruction in time management skills.

tonic-clonic seizure:
A convulsive seizure whereby the individual loses consciousness, falls, and begins making rhythmic jerking motions, formerly known as a *grand mal* seizure.

total communication (TC):
A method of communication for students with hearing impairments, designed to provide equal emphasis on oral and signing skills to facilitate communication ability.

Tourette syndrome:
A neurological disorder characterized by motor tics and uncontrollable verbal outbursts.

toxoplasmosis:
A maternal infection resulting from contact with parasites; especially devastating if exposure occurs during third trimester of pregnancy.

trainable mentally retarded (TMR):
Classification of a person with moderate intellectual disabilities who is capable of learning self-care and social skills; IQ range generally between 35–40 and 50–55.

transdisciplinary team:

A group of professionals from different disciplines who function as a team but work independently; however, they share roles, and a peer is identified as the primary interventionist.

transition:
A broad term used to describe the movement of an individual from one educational environment to another, from one class to another, or from one phase of life (high school) to another (independent adulthood).

transition management:
The regulating of students as they move from one assignment to another or from one activity to another; a proactive behavioral intervention strategy.

transition plan:
An individualized plan with identified goals and objectives used to prepare the student in making the transition from high school to work (or college); also known as an *individualized transition plan* (ITP).

transition services:
Individualized and coordinated services that assist the adolescent with a disability to successfully move from school to postschool activities.

transliteration:
Altering an interpreted message to facilitate understanding by a person who is hearing impaired.

traumatic brain injury:
An acquired injury to the brain caused by an external force that results in a disability or psychosocial impairment that adversely affects educational performance.

twice-exceptional:
Students who are gifted and talented but also have a disability.

tympanic membrane:

A thin, membranous tissue between the ear canal and the middle ear that vibrates when struck by sound waves; also called the eardrum.

underrepresentation:
A situation in which fewer children from minority groups are placed in special education programs than would be expected based on the proportion of pupils in the general school population.

universal design for learning (UDL):
The design of curriculum materials, instructional activities, and evaluation procedures that can meet the needs of learners with widely varying abilities and backgrounds.

Usher syndrome:
An inherited disorder resulting in deaf-blindness, deafness present at birth accompanied by progressive vision loss, sometimes associated with intellectual disabilities.

visual acuity:
The ability to visually distinguish details of near or distant objects.

visual efficiency:
How well an individual uses remaining visual acuity at a distance or close up.

visual field:
The amount of vision in the quadrant regions to the right, to the left, above, and below while gazing straight ahead.

visual impairment:
An impairment in vision that, even with correction, adversely affects an individual's educational performance. The term includes both visual impairments and blindness.

vitreous humor:
A colorless mass of soft, gelatinlike material that fills the eyeball behind the lens.

voice disorders:
May result from disorders of the larynx or disorders in phonation.

voice output communication aid (VOCA):
A device that can be programmed to produce speech.

walker:
A mobility aid for individuals requiring support when walking.

word prediction program:
A software program that provides a list of potential words that correspond to the letters the user is typing so that the user does not have to type out the entire word.

working memory:
The ability to retain information while also engaging in another cognitive activity.

wraparound plan:
A coordinated interagency effort at providing supports and services to a student and his or her family in the natural environment—school, home, or community.

X-linked:
A pattern of inheritance involving the X chromosome, one of an individual's two sex chromosomes.

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